ENGINEERING NEWS-RECORD

Tokyo builds for a tourist invasion p.30

A McGRAW-HILL PUBLICATION

Economy, durability, easy maintenance, functionalism—*all* are elements of this handsome new sports stadium at Maple Avenue Field, Altoona, Pa. Construction time was cut to approximately *one month* by the use of three-foot-wide prestressed box beams, with molded-in steps, resting on concrete columns . . . a deck formed of prestressed channel beams . . . precast seat supports . . . and a four-foot parapet of prestressed concrete double tee beams placed on edge. The contractor used Penn-Dixie cement.

PRESTRESSED CONCRETE SCORES AGAIN

PORTLAND PENN-DIXIE CEMENT

PENN-DIXIE CEMENT *Corporation*

REGULAR, HIGH EARLY STRENGTH AND MORTAR CEMENTS

OFFICES

Atlanta, Boston, Buffalo, Chicago, Des Moines, Detroit, Holland, Mich., Milwaukee, Nazareth, Pa., New York, Petoskey, Mich., Philadelphia, Pittsburgh

PLANTS

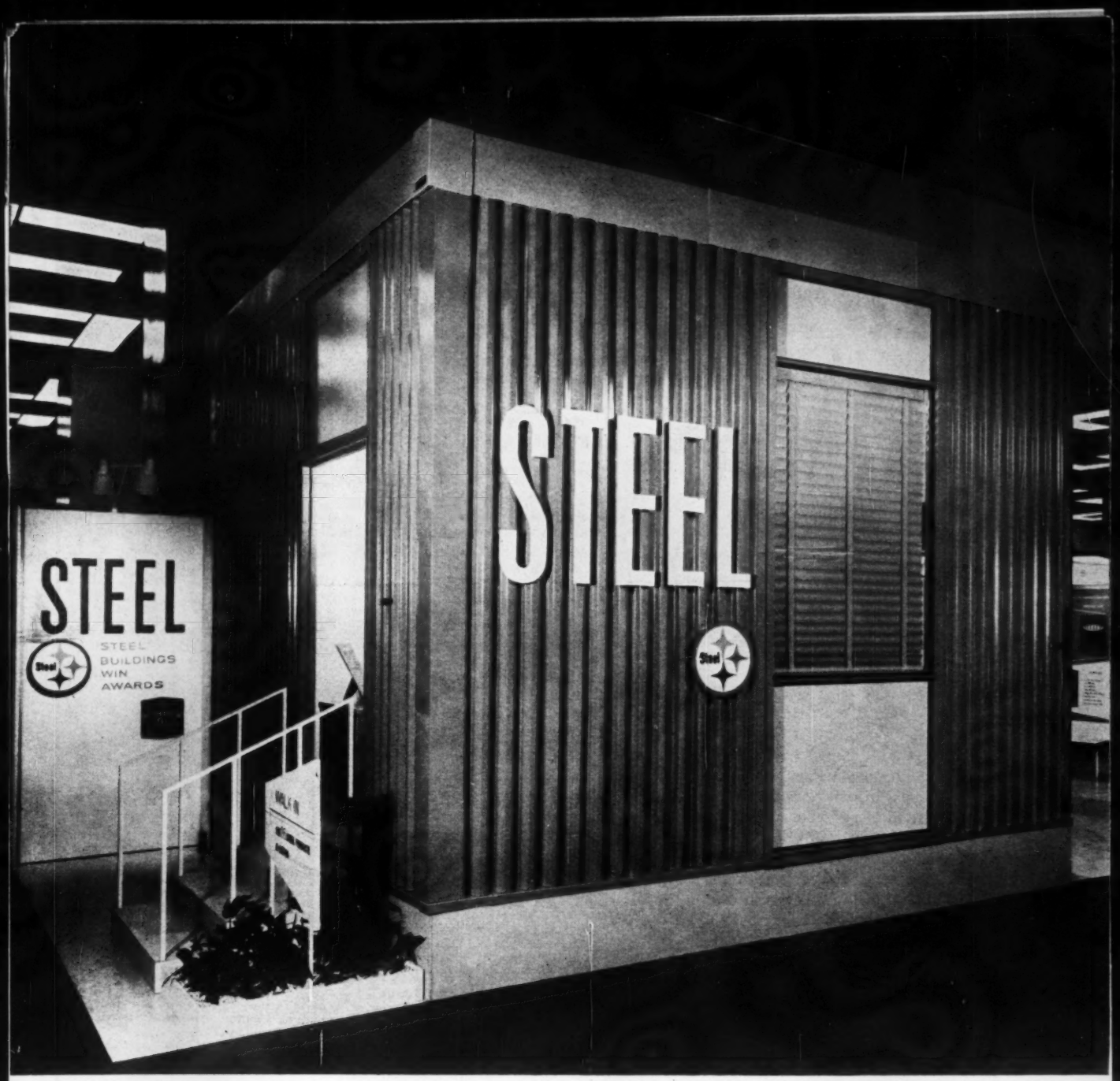
Bath, Pa.; Nazareth, Pa.; Penn-Allen, Pa.; West Winfield, Pa.; Buffalo, N. Y.; Kingsport, Tenn.; Richard City, Tenn.; Clinchfield, Ga.; Des Moines, Iowa; Petoskey, Mich.

DISTRIBUTING PLANTS

Chicago, Milwaukee, Detroit, Holland, Mich.

Penn-Dixie means Permanent Dependability

Owner: *City of Altoona, Park & Recreation Board, Altoona, Pa.* • Contractor: *New Enterprise Stone & Lime Co., Inc., Prestressed Division, New Enterprise, Pa.*
Engineer: *Frederic A. Nassaux & Associates, Consulting Engineers, 312 Trust Bldg., Chambersburg, Pa.*



WALK IN. *See how 26 steel products work together to speed erection, cut costs, provide long-lasting, beautiful industrial buildings.*

See this all-steel plant office

AND SEE
INFORMATIVE DISPLAYS
ON:

- *new A36 steel saves construction dollars in plant buildings*
- *new suspended roof designs using wire rope and bridge strand*
- *new high-strength reinforcing bars*
- *new steel joists with cold-formed chords*
- *new high-strength bolts*

It's featured in Bethlehem's exhibit at the Industrial Building Exposition and Congress. When? September 25-28. Where? The New York Coliseum. Stop by Booth 1021. We think you'll find your visit interesting.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
Export Sales: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

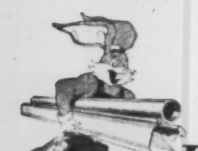
"Call FOSTER get pipe for piling PLUS"

Order pipe piles from Foster and get the right type, in the exact diameter and wall thicknesses you need . . . "plus" fast, on-time deliveries.

Another plus: you get your pipe piles cut to length—no wasteful cut-offs, and a fraction of the usual splices.

Foster's nationwide warehouses stock every kind of pipe piling: economical thin-wall spiral-weld, electricweld, lap-weld, seamless, in all diameters and walls. For foundation pipe, Rental Steel-Sheet Piling, Foster Lightweight Piling, Driving Accessories, and other construction and highway products, call your nearest Foster office.

Write **L. B. FOSTER CO.** for Pipe Piling Catalog EP-9
Pittsburgh 30, Chicago 4, Houston 2
New York 7, Los Angeles 5, Atlanta 8
Cleveland 35



Faster From Foster

Piling • Pipe • Rail

ENGINEERING NEWS-RECORD

EIGHTY SEVENTH YEAR OF PUBLICATION

A McGraw-Hill Publication • 330 West 42nd Street, New York 36, N.Y. • LOngacre 4-3000

Editor, Waldo G. Bowman

Managing Editor, **Arthur J. Fox, Jr.**

Senior Editors, **Frederick S. Merritt, James B. Sullivan, Leo J. Ritter, Jr.**

Transportation—Roads, Bridges, Railways, Airports, Pipelines, Ports
Leo J. Ritter, Jr., Edward M. Young, Jr., Joseph F. Wilkinson

Buildings—Commercial, Industrial, Housing; Codes, Specifications
Frederick S. Merritt, C. W. Griffin, Jr., Ronald G. Burns

Water—Sanitation, Water Supply, River Control, Power, Irrigation
James B. Sullivan, William W. Jacobus, Jr., Robert M. Echols

Business—Management, Labor, Finance, Markets, Contracts, Economics
Robert J. Stinson, Charles J. Harding

Regional Editors
J. Roland Carr, *Chicago, 645 N. Michigan Ave.* (*MOhawk* 4-5800)
Martha Alexander, *Staff Assistant*

Laurens L. Wise, *San Francisco, 255 California St.* (*DOuglas* 2-4600)
Anne Garcia, *Staff Assistant*

Copy—Production
Nancy Parkes, John C. Greenough, E. Allen Soast

Presentation
Harry W. Jensen, Robert G. Young

Statistics, Prices, Costs—Business News
Elsie Eaves, *Manager*
Julia Mahoney, *Construction Reports*
Mildred Wetzel, Marian Sciarra, Marie Moravsik
Eleanor Queret, Francine Todisco, Helene Wahlers, Arlene Spielman
James Webber, Ruth Carlson, *Economics*
William P. Larkin, T. M. Crosio, *Prices, Wages, Indexes*
Evelyn Huber, Edith Ostwald, *Statistics*
D. Arlene Ricker, *Unit Prices*

Editorial Research and Indexing
Eva Glerat, Rene Hay, Jane Jacobson

Consulting Editors: **Van Tuyl Boughton, Nathan A. Bowers**

Advertising Sales Manager: **Donald S. Robertson**

Circulation Manager: **Edward F. Bressler**

Washington Bureau, National Press Bldg., Washington 4, D. C., (*REpublic* 7-6630), George B. Bryant, Jr., Chief, Alan Adams, Glen Bayless, Herbert Cheshire, Boyd France, Charles Gardner, Arthur Hermann, Donald Loomis, Daniel McCrary, Gladys Montgomery, Arthur Moore, Burkey Musselman, Seth Payne, Morton Reichek, Caroline Robertson, David Secrest, Richard Smith, Vincent Smith, Harry Vandernoot, Peter Weaver

Domestic News-Bureaus: Atlanta—1375 Peachtree St., B. E. Barnes, Chief, Frances Ridgeway; **Chicago**—645 N. Michigan Ave., Stewart Ramsey, Chief, Bruce Cross, Eric Aiken; **Cleveland**—55 Public Square, Arthur Zimmerman, Chief, Violet Forsha; **Dallas**—2100 Vaughn Bldg., Marvin Reid, Chief, Mary Lorraine Smith, Mae Brown; **Detroit**—856 Penobscot Bldg., Donald MacDonald, Chief, Wesley Perry, Jr., Del Yannatta; **Los Angeles**—1125 W. 6th St., Kemp Anderson, Jr., Chief, Carl Havighorst, Michael Murphy, Marvin Petal, Bill Wallace, Mary Williams, Barbara Lamb; **San Francisco**—255 California St., Jenness Keene, Chief, Donald Winston, Marion Tracy; **Seattle**—6040 Fifth Ave., N.E., Ray Bloomberg.

Foreign News Bureaus: London—John Shinn; **Paris**—Robert Farrell; **Mexico City**—John Pearson; **Bonn**—Pete Forbath; **Tokyo**—Sol Sanders; **Rio de Janeiro**—Leslie Warren; **Moscow**—Ernest Conine.

Correspondents: In 70 principal U. S. cities and 70 cities throughout the world.
Director of News Bureaus: John Wilhelm; Managing Editor, **Margaret Ralston.**
McGraw-Hill Economics Department: Douglas Greenwald, Manager.

Publisher, Robert F. Boger

MEMBER

ENGINEERING NEWS-RECORD Vol. 167, No. 10, SEPTEMBER 7, 1961

Published weekly by McGraw-Hill Publishing Company, James H. McGraw (1860-1948), Founder. Printed at Albany 1, N. Y. See panel below for directions regarding subscriptions or change in address. **Executive, Editorial, Advertising and Circulation Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y.** OFFICERS OF THE PUBLICATIONS DIVISION: Nelson L. Bond, President; Shelton Fisher, Wallace F. Traendly, Senior Vice Presidents; John R. Callaham, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising Sales; A. R. Venezian, Vice President and Circulation Coordinator; Daniel F. Crowley, Vice President and Controller. OFFICERS OF THE CORPORATION: Donald C. McGraw, President; Hugh J. Kelly, Harry L. Waddell, Executive Vice Presidents; L. Keith Goodrich, Executive Vice President and Treasurer; John J. Cooke, Vice President and Secretary. **Subscriptions are solicited only from persons with identifiable commercial or professional interests in construction and building. Position and company connection must be indicated on subscription orders. Publisher reserves the right to refuse unqualified subscription.** United States subscription rate for individuals in the field of this publication $6.00 per year, single copies 50 cents; foreign $20 per year, payable in advance. Second-Class mail postage paid at Albany, N. Y. Printed in U.S.A. Title® registered in U.S. Patent Office. ©Copyright 1961 by McGraw-Hill Publishing Co., Inc. All rights Reserved. **UNCONDITIONAL GUARANTEE:** Our primary aim is to provide subscribers with a useful and valuable publication. Your comments and suggestions for improvements are encouraged and will be most welcome. The publisher, upon written request, agrees to refund the part of the subscription price applying to the remaining unfilled portion of the subscription—if editorial service is unsatisfactory.

SUBSCRIPTIONS: Send subscription correspondence and change of address to Fulfillment Manager, ENGINEERING NEWS-RECORD, 330 W. 42nd St., New York 36, N. Y. Subscribers should notify, publisher *promptly of any change of address, giving old as well as new address, and including postal zone number,* if any. If possible enclose an address label from a recent issue of the magazine. Please allow one month for change to become effective.

Postmaster: Please send Form 3579 to Fulfillment Manager, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

OWNER: Upper Allegheny Valley Sewer Authority. PROJECT: Townsend Sewage System, Creighton, Pa. ENGINEER: Consoer, Townsend & Associates. CONTRACTOR: The Boam Co., Livonia, Mich. PIPE: 42" concrete pipe with O-Ring Joints.

Fast-permanent solution to corrosive sewage problems . . . U. S. Concrete Pipe with O-Ring Joints!

Rugged, time defying U. S. Concrete Pipe with O-Ring joints provides a permanent solution to water and sewage, industrial waste and drainage handling problems.

U. S. Concrete O-Ring jointed pipe forms a true compression seal that stops infiltration and exfiltration and eliminates increases in treatment costs.

U. S. Concrete Pipe is manufactured in strength classifications conforming to and exceeding ASTM, AASHO and other official specification requirements and is available in 8′ and 12′ lengths.

When planning a waste disposal or drainage system contact U. S. Concrete Pipe Company in the cities listed below. Complete information and details upon request. 3647

UNITED STATES CONCRETE PIPE CO.

A SUBSIDIARY OF PITTSBURGH COKE & CHEMICAL COMPANY

1501 East Ohio Building • Cleveland 14, Ohio • Telephone MAin 1-5240

Sales Offices: Baltimore • Pittsburgh • Philadelphia • Cincinnati • Ft. Lauderdale • Ocala • Kalamazoo

TD-25'S *Full load, full pass ends load-dropping, track—*

PLANET-POWERED PUSH

-*stopping steering losses*

You Power-steer the International TD-25 by power-shifting either track. Full-time "live" power on both tracks, gives you full-profit production!

You make full-load turns without spillage — because Planet Power-steering eliminates load-spilling, load-limiting "dead-track drag."

With Hi-Lo on-the-go power-shifting, you shift down, to dig hard materials — shift up, to "run" with the load. When push-loading with the "25," you maintain solid contact on straight-away or curve — to speed heaping the bowls and get gear-higher "kick-outs"!

Exclusive Planet Power-steering makes the TD-25 the industry's only power-shifted 8-speed gear-drive, or 4-speed torque-converter tractor. And only the "25" is powered by the free-breathing, dual-valved 230-hp DT-817 turbocharged International diesel!

Compare bulldozing yardage delivered — time the push-loading advantages of the Planet Power-steered TD-25. Prove to yourself how "live-track" TD-25 push can multiply your "tight-bid" profits. Let your International Construction Equipment Distributor demonstrate!

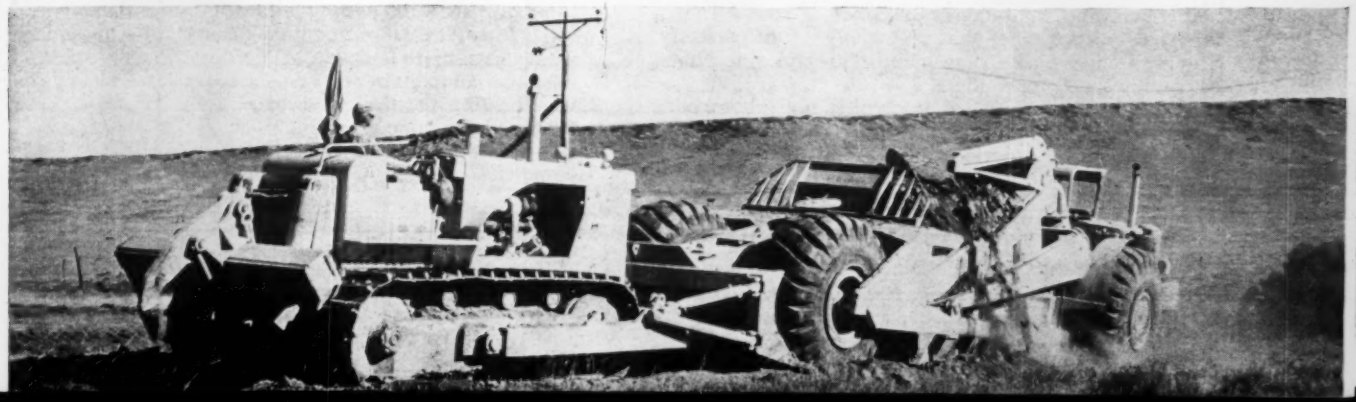
Moving thousands of tons of outcrop shot-rock for mountain road right-of-way, this TD-25 picks up and delivers its full loads without sluing or slipping. Reason: with Planet Power-steering you run one track in high, the other in low speed range to equalize offset loading. And you steer with full power on both tracks full time — to avoid load-dropping interruptions!

Power-gaining Planet Power-steering helps you heap-load scrapers in record time — right where clutch-steered pushers lose half their push! Power-shifting either track up or down keeps solid push-block contact on curves. Power-shifting up, on-the-go, gives gear-higher kick-outs than ordinary. And with 7.5 mph reverse, the "25" repositions faster than slower rigs!

"Hanging a bench" on a mountainside, the TD-25 operator either upshifts the bank-side track — or down-shifts the outside track. Then he makes full cuts under full power without "bank-nosing," rear-end skidding, or "lever fighting."

International® *Construction Equipment*

International Harvester Co.,
180 North Michigan Ave., Chicago 1, Ill.
A COMPLETE POWER PACKAGE



TENSILFORM® BY WHEELING

ONE MAN LAYS IT! ONE MAN WELDS IT!

Here's the permanent concrete form that lays and welds without forcing! It's Wheeling Tensilform. Designed for both floors and light-aggregate concrete roofs, Tensilform has uniform sides that nest easily . . . fit perfectly. So crews never waste time hammering out side bulges or holding sheets for welders.

You can *always* depend upon this big labor-saving advantage when you use Tensilform! That's because it's made by one of America's oldest and most respected producers of corrugated steel products.

You'll gain many other advantages, too. For example, Tensilform's *all-new* design is strong, permitting fewer, lighter supports, and adding lateral stability to all types of structures. Tensilform, with plaster ceiling, provides fire ratings of up to four hours.

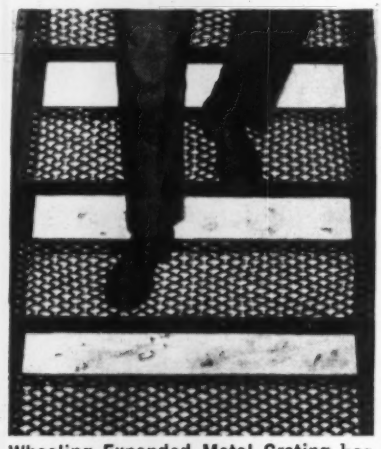
Get the complete story on Tensilform and the other fine Wheeling products shown on the next page from your Wheeling man. Or write direct to Wheeling Corrugating Company, Wheeling, West Virginia.

Wheeling

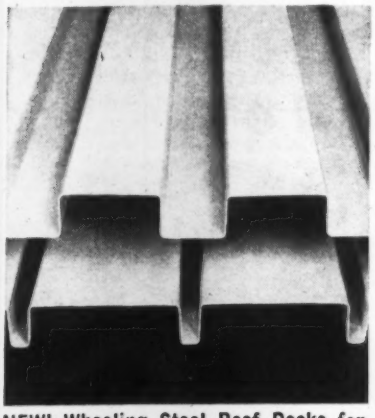
WHEELING CORRUGATING COMPANY · IT'S WHEELING STEEL!

Warehouses: *Boston, Buffalo, Chicago, Columbus, Detroit, Kansas City, Louisville, Martins Ferry, Minneapolis, New York, Philadelphia, Richmond, St. Louis.* Sales Offices: *Atlanta, Houston, New Orleans.*

Wheeling Continuous Weld Steel Pipe provides strong, dependable, low-cost service... usually outlasts the building.



Wheeling Expanded Metal Grating has non-slip surface... prevents accumulation of slippery grease, ice and snow.



NEW! Wheeling Steel Roof Decks for roof and side-wall construction that's strong... safe... durable... efficient.

Reader Comment

How Much Should Truckers Pay?

The Trucker's Share

SIR—Your editorial Win for Truckers' Lobby? (ENR June 15, p. 96) does a great disservice not only to the trucking industry, but to your readers and to the congressional committees that considered the highway tax bills.

To quote the editorial, "Congress has chosen to ignore findings of the elaborate and costly road test and the comprehensive highway cost allocation study required by the 1956 Act . . ."

It would seem that ENR and not the Congress is guilty of ignoring the provisions of the 1956 act and part of the study you refer to.

If you will recall, the 1956 legislation called for two highway cost allocation studies—one of the cost attributable to different sizes and weights of vehicles; the other, of the benefits received by these vehicles (as well as by non-users). The first method is known as the "incremental"; the second, as the "differential benefit."

In making their decisions, the House Ways and Means Committee and the Senate Finance Committee studied and weighed both of these methods and the tax responsibility assignments based on them. In deciding what they considered to be fair taxes to be paid by trucks the committees set rates which fell between them.

The Senate Committee's report made this point in this language: "Your committee believes that it is proper for the burden under the bill to fall between the charges provided by the two methods insofar as possible. It takes this view because in part it appears desirable that the cost be spread on the basis of benefits in the various classes and in part that it be spread on the basis of the additional costs incurred because of each of the various classes of users. It will be noted that the President's program much more closely follows the incremental method, ignoring almost entirely the differential benefit method."

Although the editorial stresses the desirability of highway users paying taxes in accordance with the benefits they receive from the highways, it ignores completely the differential benefit study and rests it conclusions entirely on the basis of incremental study.

Taking only one of the studies, the incremental one, as was done in the editorial, presents only half of the picture. If ENR had decided that the differential benefit study was the basic approach, it would have had to come to the conclusion that the trucks are paying far beyond their fair share, for in each truck class the highway taxes enacted by Congress are higher than are assigned in the benefits study.

We believe it is significant that the two legislative bodies that had the responsibility for determining the taxes and had access to the full facts—the House Ways and Means Committee and the Senate Finance Committee—both came to the conclusion that the tax provisions reported out were fair and equitable.

In view of the decision of Congress to set truck taxes above their assignment on the basis of benefits from use of the highways, it is difficult to understand how ENR could conclude that "the general public pays more, the truckers less, for benefits received."

EDWIN H. SPENCER
Ass't to Director of Public Relations
American Trucking Associations, Inc.
Washington, D. C.

Editor's note: Trucker Spencer makes a cogent and valid point. The compromise reached by the congressional committees was a practical solution to the problem. However, it did not change the validity of the incremental approach, upon which the Administration's original proposals were based.

For Safety's Sake

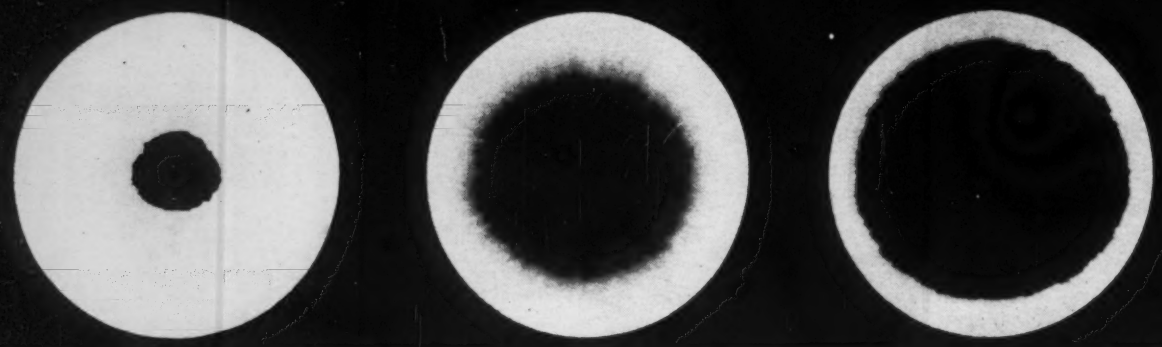
SIR—Your editorial "For Safety's Sake" (ENR Aug. 17, p. 128), should have included, concerning the Kariba Dam, the statement of the chairman of the Rhodesian Federal Power Board, reported in the *New York Times*, Aug. 6, that "recent tests by modern seismic and other equipment showed that further substantial measures were needed to make certain that the southern abutment would be fully capable of withstanding the water pressure that would be built up when the lake reached its higest level" (see p. 25).

Measurements on actual structures can greatly contribute to the improvement of design, as you state. However, structures consist of the structure proper and of the foundations. The safety of both parts is equally important. The results of the tests by modern equipment, as they indicate the true characteristics of foundations, should also be publicized.

LOUIS BALOG
Consulting Engineer
Binghamton, N. Y.

(Reader Comment continued p. 10)

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.



3 drops of oil—3 conditions. First oil doesn't spread and has lost dispersancy. Second oil spreads into paper, has good dispersancy. Third spot indicates good dispersancy, but high soot level. Shell "Oilprint" Analysis can give you advance warning of engine trouble.

BULLETIN:

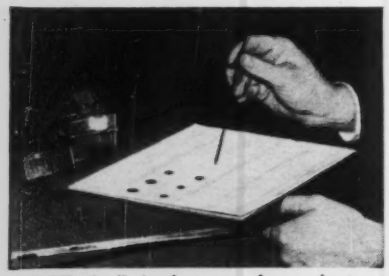
Shell 5-minute "Oilprint" Analysis shows what's going on inside your engines; now used by over 500 fleet operators

Now, with Shell's ADC® "Oilprint" Analysis, you can test used engine oils in your own shop. And in a matter of minutes.

Read how this unique testing process can give you advance warning of engine trouble, help you set up more effective maintenance schedules and reduce roadside breakdowns.

A DROP of oil from an engine is an excellent indicator of the lubricant's condition and—to the experienced eye—of the engine's condition.

It can tell you if the oil is still satisfactory for continued service. It can provide clues to faulty carburetion. It can show a coolant leak. It can help you schedule proper oil drain intervals. And much more.



"Oilprint" Analysis can be made in your own shop.

How do you get this information quickly?

Over 500 fleet operators have found the answer in Shell's 5-minute "Oilprint" Analysis.

All that's needed: Shell's ADC "Oilprint" Analysis Chart and a warmed-up engine.

A few drops tell the story

Take the problem of sludge accumulation.

If the oil makes a dark concentrated spot, it has lost its ability to hold sludge particles in suspension. Poor dispersancy, our technical people call it. The oil should be changed.

By adding Shell Indicator Fluid, a Shell Representative can tell if the oil still has its anti-wear properties. In Shell's Motor Oils for fleet use, these properties guard against engine wear.

You can also determine the relative amount of soot and contaminants—such as wear debris and dust that might foul your engine. If there's a water leak or anti-freeze contamination, proper evaluation of an oilprint will reveal it.

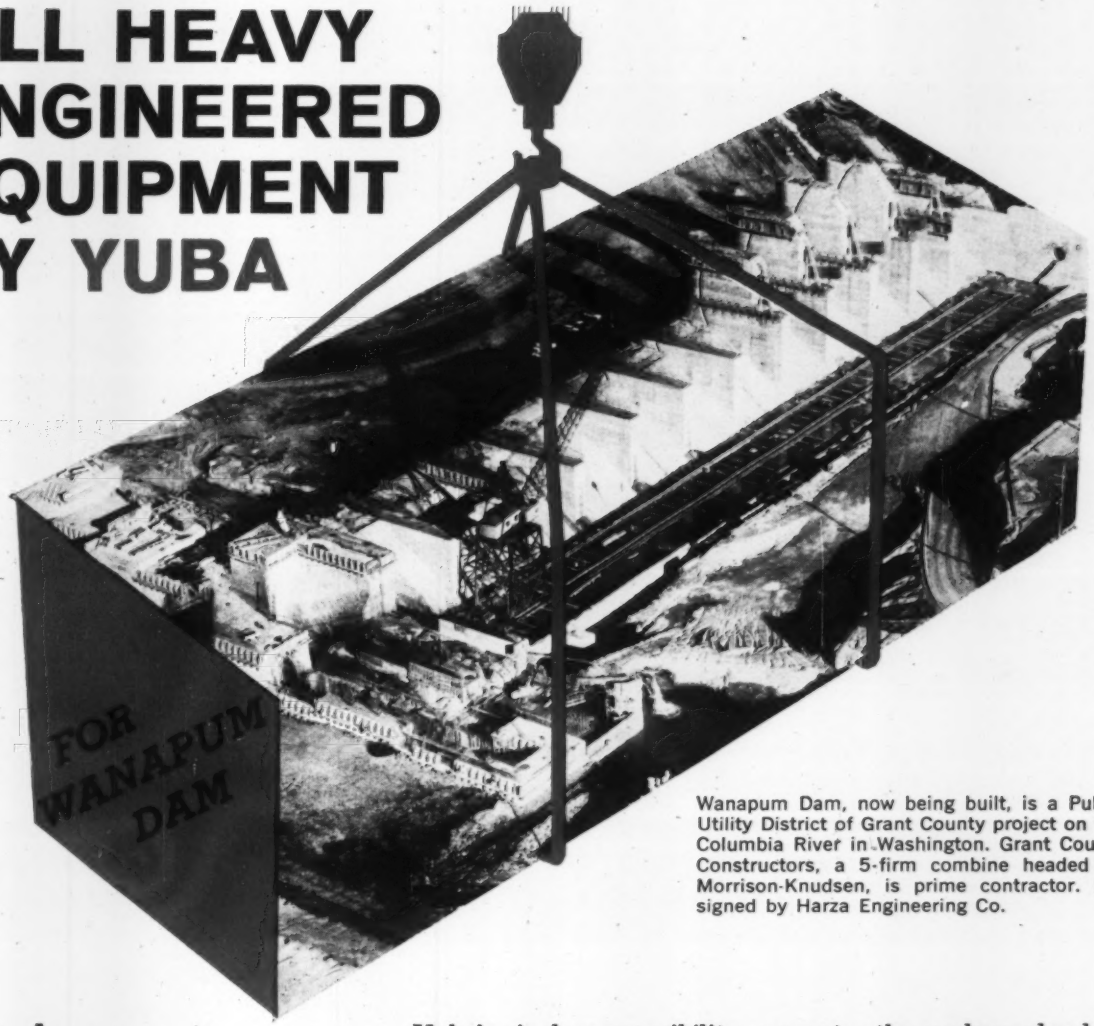
Free Demonstration

Your Shell Industrial Products Representative will gladly give you a free demonstration of the Shell ADC "Oilprint" Analysis. He will show you how to set up a "life cycle" report of every engine you operate. Call him today.

SHELL

A BULLETIN FROM SHELL
—where 1,997 scientists are helping to provide better products for industry.

ALL HEAVY ENGINEERED EQUIPMENT BY YUBA



Wanapum Dam, now being built, is a Public Utility District of Grant County project on the Columbia River in Washington. Grant County Constructors, a 5-firm combine headed by Morrison-Knudsen, is prime contractor. Designed by Harza Engineering Co.

A SINGLE RESPONSIBILITY FROM FOREBAY TO TAILRACE

For Wanapum Dam, Yuba is furnishing bridge and gantry cranes, spillway gates, gate hoists, bulkheads, intake gates, draft tube gates, frames and guides, trash racks, other necessary gates and guides... some 350 carloads of material under Yuba's single responsibility!

Yuba's single responsibility concept – the package development that takes such a work load off the shoulders of the prime contractor in hydro or water control projects – is well illustrated in the Wanapum Dam project.

Yuba has the single responsibility here for designing, manufacturing and installing all the heavy engineered steel equipment. With Yuba as the source, both the contractor and user are relieved of the problems of coordinating production, delivery and installation. Decades of experience, skilled personnel and large, fully-equipped production facilities, both East and West, are your assurances that specifications and schedules will be met–and met most economically. Ask for Bulletin HY-51 on Yuba equipment and services, or ask your Yuba man to call.

YUBA

specialists in hydroelectric steelwork

YUBA MANUFACTURING DIVISION

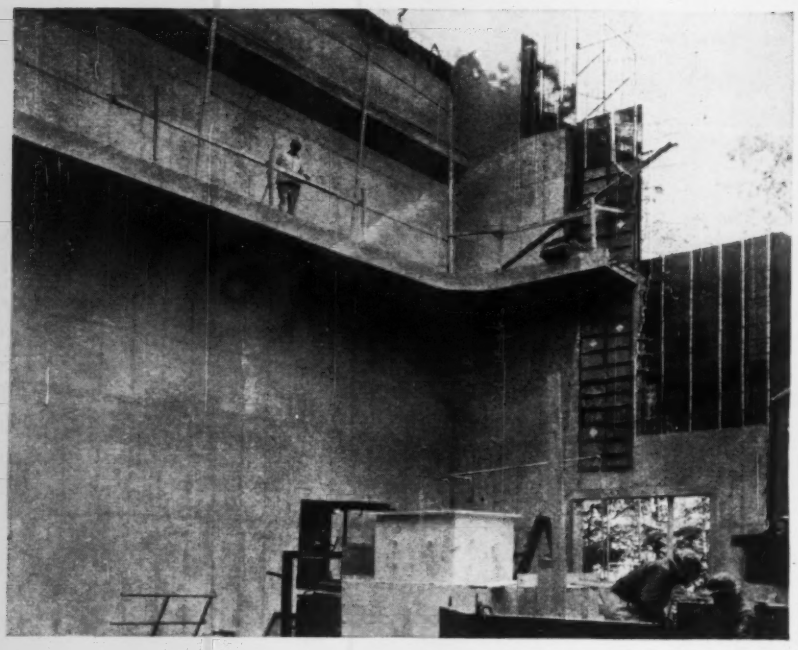
•

YUBA BEDFORD CORPORATION

YUBA CONSOLIDATED INDUSTRIES, INC.

Sales Offices in Chicago • Houston • Los Angeles • New York • Pittsburgh • San Francisco

Prefabs form cut-up job . . .



Catwalks, haunches poured together with Symons steel-ply forms

One of the best case studies of prefab form versatility in action was that of the atomic reactor facility for Cornell University at Ithaca, N.Y. On one phase of the project, the contractor, Rouse Construction Company, Gouverneur, N.Y. used Symons Steel-Ply Forms to pour monolithically the walk around the reactor, the catwalk and the haunch above it. Pours averaged about 16 feet high.

Symons Forms also showed their adaptability when forming was done around the complicated reactor machinery. It was imperative here that no ties be used in pouring the first six feet of the wall. To solve the problem, Symons Forms were simply attached together and the machinery itself acted as bracing. Some of the walls were as high as 45 feet when completed.

For complete information on Symons Steel-Ply Forms, write us. Ask also about our free engineering service . . . rental purchase options . . . and complete-line catalog.

Symons CLAMP & MFG. CO.

4265 Diversey Avenue Dept. J-1 Chicago 39, Illinois

Warehouses throughout the U.S.A.

MORE **SAVINGS** FROM **SYMONS**

END WORRY ABOUT WATER

MORETRENCH WELLPOINT SYSTEM

Guarantees Dry Digging

Send for Catalog

MORETRENCH CORPORATION

World's Oldest, Largest and Most Experienced Predrainage Organization

Main Office & Plant: Rockaway, N. J.

Chicago, Ill., Tampa, Fla., Houston, Tex., Hackensack, N. J.

. . . Reader Comment

Concrete Bearing Stress

SIR—I was concerned to read in your latest article on the building collapse near Harrisonburg, Va. (ENR Aug. 3, p. 22), that the formula in Section 207.3.4 of the ACI-ASCE Joint Committee 323 report apparently has been used to calculate allowable beam bearing seat stress.

As a former member of the executive group of Committee 323, I participated in the discussions and adoption of the formula in question. The justifications for the comparatively high allowable stress obtained by this formula are:

1. The average stress under the anchor plate for a prestressing tendon can be determined to a comparatively high degree of accuracy, since jacking forces are carefully measured.

2. The force on the anchor plate is almost invariably less at design loads than it was initially; therefore the anchoring operation is in effect a proof test. Even at ultimate load on the member, the bearing stress under the anchor plate is almost always less than the initial stress, except for unbonded construction (in which case it may be slightly more).

3. The concrete cast at the end blocks of a beam is free from the laitance and segregation associated with horizontal surfaces, at which the concrete quality is usually appreciably less than in the interior of the member.

The use of this formula for other than anchorage bearing stresses on end blocks was certainly not intended by Committee 323.

In making the above point it is not my intention to comment on the ability of the seat as detailed to carry the required construction loads, but only to correct a specific statement concerning the applicability of a specific formula.

HOWARD SIMPSON
Simpson, Gumpertz & Heger, Inc.
Cambridge, Mass.

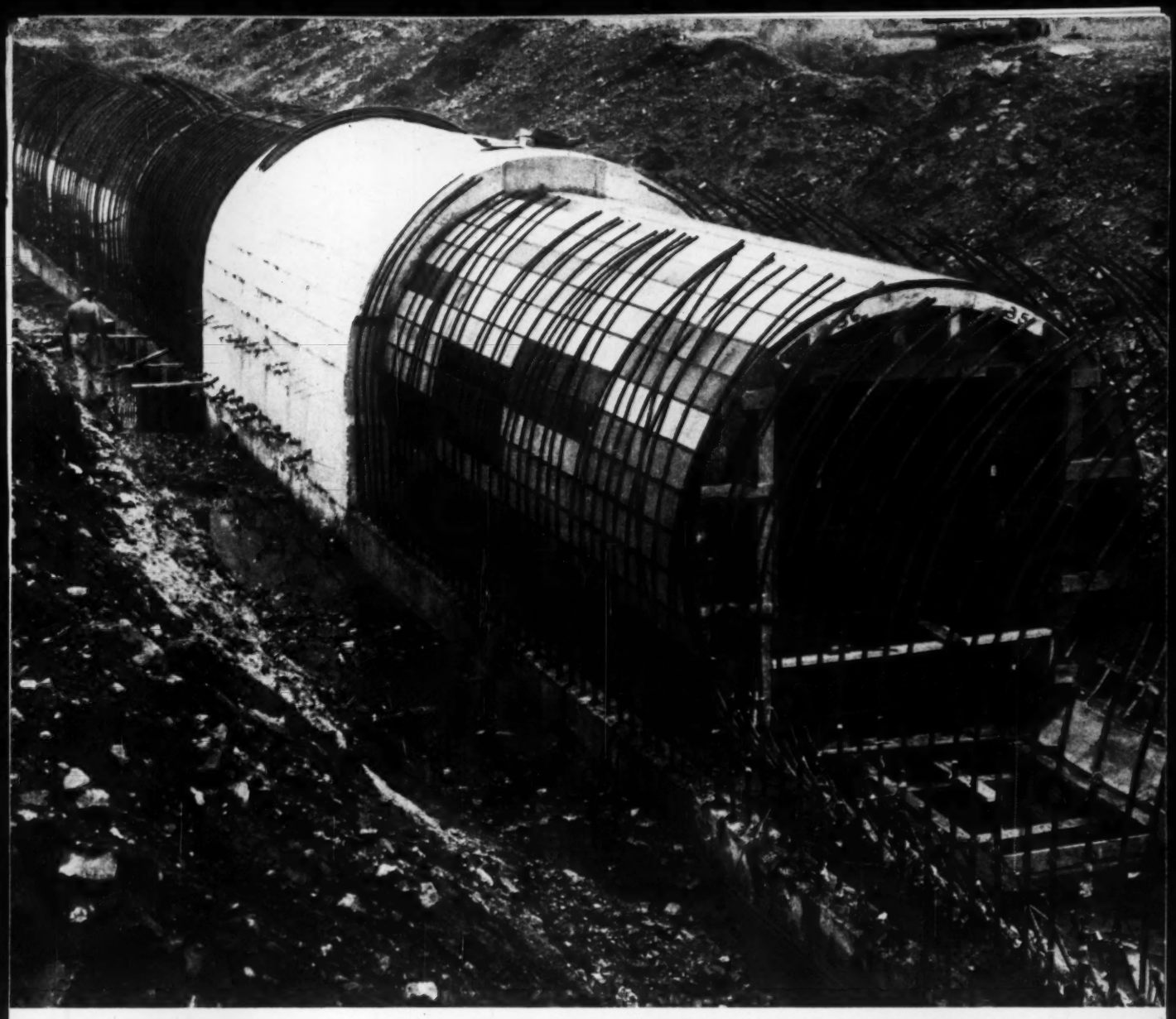
Biggest Dome

SIR—Your article Super Dome for a Supermarket (ENR May 18, p. 38) states, "The largest aluminum dome in the U. S. will be the main building in a suburban shopping center in Marin County, Calif. . . ."

The aluminum domes to house building products exhibit and market development centers, to be called "Showcases," the first of which is now being erected in Detroit, Mich., will surpass this dome.

Like the Marin County shopping center dome, the "Showcases" will be also covered by Kaiser-aluminum geodesic domes, but of a 210-ft. diameter providing more than 35,000 sq ft of open floor space. In vertical the "Showcase" domes, however, will rise only 64-ft, compared with the 76-ft rise of the Marin County dome.

SHU-T'IEN LI
Mobile, Ala.



New approach to tunnel jumbo: Hinged walers allow sides to swing in so jumbo can be lowered, rolled ahead, jacked up and re-set. For complete details on this time-saving development, write Symons Clamp & Mfg. Co., 4249 Diversey Avenue, Chicago, Illinois.

GPX® OVERLAID PLYWOOD helps Symons Clamp speed $400,000 sewer project

Jumbo can be stripped, set, poured — all in one day! New tunnel jumbo developed by Symons Clamp & Mfg. Co. using GPX High Density overlaid plywood can be stripped and re-set, ready for pour, in just one hour! Smooth plastic face on GPX helped make this speedy stripping possible. Re-useability of rugged GPX allowed non-stop use of tunnel form. Result: ¼ mile of circular, poured-in-place concrete was completed in three months ... well ahead of schedule.

Exceptional saving in labor, material. Since GPX could be re-used, no costly labor and material was required for additional forms. What's more, GPX can be used again after this job: its life is limited only by number of cuts and the care in handling.

Excellent results: smooth plastic face on GPX gives an exceptionally smooth surface to finished concrete. For full information on GPX High Density overlaid plywood—the concrete form that strips faster, lasts longer—write Georgia-Pacific, Equitable Bldg., Portland 4, Oregon.

GP

GEORGIA-PACIFIC

Plywood • Lumber • Redwood • Hardboard • Pulp • Paper • Chemicals

BUCYRUS
ERIE
22-B

TIGER ON THE SPOT AT MOBILE'S WRAGG SWAMP

USS Tiger Brand Wire Rope withstands biting sand and muck digging drainage canal

Land that was once a swamp will soon be used for housing developments and golf courses in Mobile, Alabama. An estimated 900,000 cubic yards of muck, sand and clay were gouged out of Wragg Swamp to create a new $1,400,000 drainage canal five miles long.

Here at work are some of the draglines and pile drivers . . . all are rigged with tough, rugged USS Tiger Brand Wire Rope. This job really puts wire rope on the spot. Dragged through biting sand, soaked in water, subjected to sudden shock loads, it takes a terrific beating. That's why sub-contractors Bernard & Byrd rely on USS Tiger Brand—America's No. 1 Wire Rope—for low wire rope costs.

USS Tiger Brand Wire Rope is a top-quality product. Specified standards are maintained for every step of production. Plant facilities are unsurpassed in the industry. These facilities, along with one of the finest staffs of wire rope engineers in the country, assure wire rope with complete dependability, long service life and maximum economy.

Whatever the equipment—whatever the purpose—you'll find a USS Tiger Brand Wire Rope designed to meet your most exacting needs. And there's a Tiger Brand Field Service Representative near you to help you make the best selections. Call your local Tiger Brand Distributor for information or write American Steel and Wire, Dept. 1238, Rockefeller Building, Cleveland 13, Ohio.

USS and Tiger Brand are registered trademarks

USS Tiger Brand Wire Rope resists shock and impact loads on this pile driver.

◀ Sand and muck combination creates a severe abrasion problem. USS Tiger Brand Wire Rope takes this rough service in its stride and provides greater operating economy.

Section of Wragg Canal designed to handle 6,500 cubic feet of water per second. Five machines are shown digging this canal—all rigged with USS Tiger Brand Wire Rope. Engineers: J. B. Converse & Company. Prime Contractors: Laidlaw Contracting Co., Flaco Corp. and M. C. Farmer. Subcontractor: Bernard & Byrd.

American Steel and Wire Division of United States Steel

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
Tennessee Coal & Iron Division, Fairfield, Ala., Southern Distributors
United States Steel Export Company, Distributors Abroad

This mark tells you a product is made of modern, dependable Steel.

NEW FRONTIER

LOCK JOINT LAUNCHES ITS PLASTICS DIVISION

To produce plastic pipe and protective coatings and linings for the transportation of sanitary and industrial wastes, and corrosive fluids, Lock Joint Pipe Company has established a Plastics Division through the acquisition of the following highly regarded companies in the plastics field:

ELECTRO-CHEMICAL ENGINEERING & MANUFACTURING CO.
EL-CHEM ENGINEERING & MANUFACTURING CO. (Canada)
Corrosion resistant coatings, films and foams.

CORROPLAST, INC.
P.V.C. pipes, sheets and shapes.

OSCAR DAVIS COMPANY, INC.
Plastic fittings, valves and special fabrications.

LOCK JOINT PIPE COMPANY
Established 1905
P. O. BOX 269, EAST ORANGE, N. J.

CONCRETE PRESSURE, SEWER, CULVERT & SUBAQUEOUS PIPE · PLASTIC PIPE, AND PROTECTIVE COATINGS

ENGINEERING NEWS-RECORD

Vol. 167, No. 10 September 7, 1961

Number of copies printed in this issue 87,592

CONTENTS

A Record $25.6 Billion Market for 1962..... 19
Atlanta Reaches for Rapid Transit..... 21
Transit Agency Calls for Ideas..... 21
1963 Highway Funds: Most Are Up..... 22
Consultants State Their Position..... 23
Tighter Rein on Niagara Falls..... 23
House Pioneers With Aluminum Joists..... 24
Dam Holds Back Ocean..... 24
Kariba Abutment to Be Beefed Up..... 25

FEATURES

Latex Modified Mortar Renews Bridge Deck.... 26
Tokyo's Tourist Boom Generates Hotel Boom... 30
New Life For an Old Building..... 32

FIELD AND OFFICE

Slenderizing Trims Pier Costs..... 37

NEW PRODUCTS

Pipe Puller Goes on Backhoe..... 39
Hod Buggy Designed for Fork-Lifts..... 39

MEN AND JOBS..... 45

BUSINESS AND FINANCE

Missile-Base Builder Wins Profit With Paper.... 68
Equipment-Orders Rise Forecast..... 69

LABOR

Maintenance Work Starts a New Feud..... 71
Hiring of Only Local Men Is Legal..... 72

Reader Comment .. 7
Washington Observer 17
Unit Prices 47
Materials Prices 51
Construction Reports.. 55
Statistics, Indexes .. 67
Legal 74
Editorials 84

Picture Credits

Cover, 30, 31—McGraw-Hill World News; 23—ENR; 24—Baltazar Korab ©; 32 left, 33 right—Ed Hall.

Back issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Semiannual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in the Applied Science & Technology Index, Business Periodicals Index and the Engineering Index*

THE CONSTRUCTION WEEK

COSTS CHANGE LITTLE—ENR's 20-Cities Building Cost Index stands at 571.34 this month, a rise of only 0.08% from August. The 20-Cities Construction Cost Index dropped a scant 0.01% to 854.01. Both indexes are based on 1913 as 100. From now until year-end, wage increases will be a negligible factor in costs; most trades negotiated new contracts, and only a few deferred increases still loom.

CIVIC SURVIVAL SERVICE—Residents of Eudora, Ark., can get the hole dug for their family fall-out shelters free of charge. City-owned machinery will do the job. Construction of the shelter is the individual's responsibility.

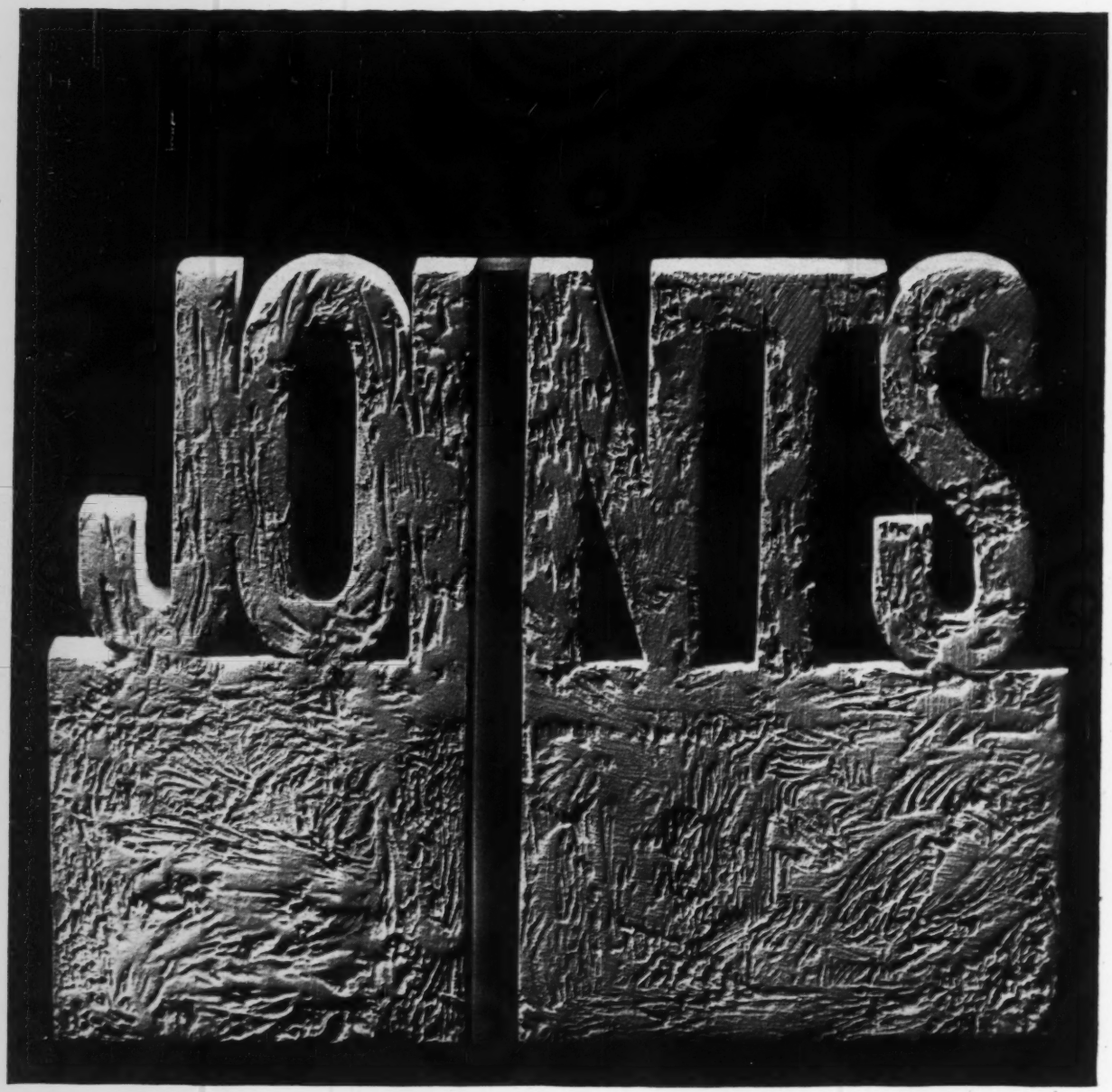
BIG BONUS—By completing its $18 million contract for Chicago's twin terminal buildings at O'Hare International Airport, 52 days ahead of schedule (Aug. 28), Malan Construction Corp. earned a $338,000 bonus. Malan's contract with the city's Department of Public Works had a $6,500 per day bonus and penalty clause.

GET A JOB ON THE MOON—The Interstate Commerce Commission, in recommending federal subsidies for railroads, said that a nation that is racing to send a man to the Moon should be able to guarantee commuters dependable transportation. Congressmen agreed, but gave the subsidy idea a chilly reception.

AMBASSADOR CLAY—General Lucius D. Clay, sent to Berlin as President Kennedy's special representative with the rank of ambassador is a Corps of Engineer alumnus and a member of ASCE. Back in 1940, just before his brilliant war record began to unfold, he was district engineer in charge of construction of Denison Dam, the large earthfill on the Red River boundary between Texas and Oklahoma. Lock and Dam No. 2 on the Allegheny River above Pittsburgh was another of his earlier projects.

YOU GET WHAT YOU PAY FOR—Public Works Director Arthur Grimm of Des Moines blames slipshod inspection for deficiencies found in concrete pavements built by contract. Before this year, only part-time inspectors were used. They got 8 cents per hour less than city-employed common laborers.

SHAKE WELL BEFORE USING—High-speed mixing of cement and water before addition of this paste to the aggregates may yield higher strength concrete. Limited tests at the University of Maryland lead to this tentative conclusion, Delmar L. Bloem, associate director of engineering, National Ready Mixed Concrete Association, has advised association members.



No building is better than its weakest joint — or the material used to make it watertight ■ Sealant based on THIOKOL liquid polysulfide polymer does more than fill joints and shed water . . . it adds structural strength, unique among caulking compounds ■ Custom-applied to the job on the job, polysulfide-type sealant conforms automatically to all joints regardless of size or shape. No cutting, no splicing, no vulcanizing, no compression is ever required to produce and maintain a watertight seal. Worrisome departures from original joint design which inevitably occur between drafting board and construction site can be compensated for instantly ■ Sealant containing THIOKOL polysulfide polymer welds itself chemically to all building materials in any combination. Expansion up to 100% cannot break its steel-grip bond, while its outstanding resistance to sun, freezing, moisture, ozone, chemicals and aging assures trouble-free weatherproofing for extended periods of time ■ ASA Specification A 116.1 sets quality and performance standards for polysulfide-type sealant. Make it your guide on your next assignment. There is only one polysulfide polymer. And it's produced by Thiokol.

Thiokol®
CHEMICAL CORPORATION
780 N. Clinton Ave., Trenton 7, N. J.
In Canada: Naugatuck Chemicals Division, Dominion Rubber Company, Elmira, Ontario

WASHINGTON OBSERVER

- **Battle over steel price increases looms**
- **Foreign aid bill backs overseas builders**
- **Expanding desalting program a certainty**

● **The verbal attack against steel price increases this fall is on in earnest.** President Kennedy took up the cudgel last week by warning about the inflationary effects of a price boost. He is seriously worried about the economic impact of a steel price increase and will use his presidential prestige to stymie such a move.

Still to be heard from on the issue are the major steel companies. Liberal Democratic senators preceded Mr. Kennedy with a before-the-fact attack on possible price increases (ENR Aug. 31, p. 61) Republicans defend the right of the industry to let "natural market forces" set price levels. But the industry has maintained a discreet silence. If it finally decides to boost prices, the government can do little. Under present law, it can bring legal action against the companies only by proving price collusion, which would be extremely difficult.

● **The foreign aid bill passed in Congress should give a major boost to contractors with overseas jobs.** Although Congress insisted on year-to-year control over expenditures, it granted the Administration authority to commit this country to the support of long-range development projects in underdeveloped nations.

This represents a major change in U. S. policy. Until now there has been no assurance that Congress would continue to supply funds for several years to complete a huge dam, for example. Now, the White House can tell a Latin American country it may expect, say, $1 billion over the next five years in aid for a massive project or a series of projects, if that country will overhaul its tax system, institute land reforms and stabilize its currency.

Insurance against "political risks" involved in a foreign project also are included in the bill. The government guarantees the contractor that he will not lose his money because of war, expropriation or the inconvertability of the foreign currency. "Commercial risk" losses also are insured, but to a limit of $10-million per claim.

● **A huge expansion of the desalinization reserach and development program now is assured.** The Senate approved a 10-year, $100-million program to find an inexpensive way to convert sea and brackish water into usable fresh water. The House earlier passed a $50-million program—so it can be assumed that something in the nature of $75 million will emerge from a House-Senate conference committee. President Kennedy will go along with any such compromise, despite his original request for unlimited funds. Earlier programs have hardly exceeded $1 million in any given year.

● **Something concrete in the way of new underground shelters finally is getting started.** The Office of Civil and Defense Mobilization is putting up about $90,000 each for underground shelters in nine schools under construction in various sections of the country. Each is a little different to determine the best way to build such shelters. In Montgomery County, Md., for example, the unit will consist of four classrooms, each capable of seating 35 pupils. The four units will be able to handle 500 persons in an emergency.

Check these 4 important reasons for specifying X-L-O Primer for shopcoating steel shapes

1 Pittsburgh's X-L-O cuts costs without sacrificing quality. Its exceptional "steel surface-wetting" properties minimize the need for expensive power-tool or blast cleaning prior to shopcoating. Hand cleaning is usually adequate.

2 X-L-O dries clear through so fast and uniformly that it enables 24-hour shipment of fabricated parts regardless of season.

3 Vulnerable "thin spots" are avoided with X-L-O, because it consists of 98% film-forming solids. Thus, it covers more steel per gallon, and coats even joints, mill scale and irregular areas uniformly with very little shrinkage from wet to dry stages.

4 You're sure of maximum protection against corrosion with X-L-O Primer—in transit, during erection, and for the entire life of the structure. X-L-O also provides such an excellent base for final coats that *their* resistance to weather-wear is improved.

• **Choose from two X-L-O Primers**—100% red lead, or a combination of red lead and iron oxide. Both are made with only the finest grade of extracted linseed oil. Both can protect your steel shapes better, so they'll give maximum service. For proof, write, phone or wire Pittsburgh Plate Glass Co., Industrial Finishes, 1 Gateway Center, Pittsburgh 22, Pa.

Specify X-L-O—Another Example of PPG Research Leadership

• **Pittsburgh's X-L-O** Primer protects the structural steel in this new Grand Rapids Expressway Bridge at Front and Fulton Streets in Grand Rapids, Michigan. The bridge was constructed for the Michigan State Highway Department by the R. C. Mahon Company of Detroit, Michigan.

PITTSBURGH INDUSTRIAL FINISHES

PAINTS • GLASS • CHEMICALS • RESINS • PLASTICS • FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

ENGINEERING
NEWS-RECORD

What's ahead for 62?

Outlook For '62 Awards: UP 11%

- **Public Works Boom to Gain Momentum: UP 10%**
- **Space Construction to Lift Federal: UP 15%**
- **Industrial to Spark Private Rebound: UP 11%**

A Record $25.6 Billion Market

Can construction men turn a 2% deficit in new business at the end of August into a 2% gain for the full year 1961, then wrap up a thumping 11% increase in 1962 heavy construction contracts?

A good many contractors, disenchanted with the construction market's performance to date, are likely to say, "Not a chance." But key factors, which they would probably find it hard to argue against, point to this as a conservative appraisal of the outlook.

New proposed projects reported by ENR are rising. In fact, a sharp uptrend in new plans for state and local non-highway construction has been underway since '59. Spurred by increased federal financial aid, this buildup of new proposed work has triggered the first stage of a prolonged upturn in public works contracts (ENR Aug. 31, p. 19).

Even sharper upward trends are now evident in the volume of new plans for commercial building and industrial plants. These promise to drive commercial building awards to their fourth consecutive annual record in 1962, and to initiate the expansion phase of a new industrial building cycle late this year or early next.

Congress' record to date and prospects for the balance of this session bode well for contract volume over a broad range of public works categories. In addition to upping federal aid for highway, bridge, sewerage, and airport contracting by state and local agencies, other appropriations and authorizations call for raising federal construction in just about all categories except military construction.

Mass housing hasn't yet responded to the stimulus intended by the Housing Act of '61. But it still appears reasonable to expect some positive, if weak, response this year and next. For a growing number of families, incomes will rise and economic prospects will improve with the general economic expansion. New housing projects should reflect this improvement. Apartments should continue to make the strongest showing and set a new high, whereas a moderate increase in '62 would still leave multi-house development volume far below its 1955 record.

Space-age construction will start closing in on the billion-dollar-a-year mark in '62, even though missile base construction may not measure up to 1961's volume, much less 1960's one-half billion record (based on original contract cost and not including additional costs due to change orders, which can double the final cost of missile base facilities).

President Kennedy has committed the U.S. to race the Russians in manned space flight to the Moon, a race that may cost this country as much as $20 billion by 1969. New construction required for the Saturn and Nova spacecraft test and launch facilities will run into the billions (ENR Aug. 31, p.24). ENR's contract awards forecast for '62 includes $300 million for launching complexes, plus a $60-million manned space flight laboratory and a $100 million production and testing facility for Nova-class boosters. However, this is just a sample of space-related construction that's expected to come up for bids in the Sixties.

Federal atomic energy construction contributes two large projects to the forecast: the Stanford linear electron accelerator, estimated to cost $114 million, plus the $58 million nuclear power generator proposed to convert energy from AEC's Hanford, Wash., new plutonium production reactor.

Next year promises to provide increases in contract volume for every major type of heavy construction. In this forecast, the increases range from 4% for private mass housing to 22% for industrial building (see table on following page.) Largest increase in public works should come in earthwork-dams-waterways, up 21% due to federal and California's Feather River project.

Look for new records next year in waterworks awards up 13%, sewerage up 8%, highways up 6% and commercial building up 12%. College construction should contribute heavily to the gain in the commercial building category.

A 16% jump in public buildings other than housing reflects mainly an increase in federal buildings, including the major NASA and AEC projects listed above, plus federal office, court and post office buildings. By contrast, the biggest single type of building in this category—schools—is likely to decline next year. While this year is likely to set a new high for school contracts (judging by bond sales in the first eight months), next year will probably see the lagging influence of the 1960-61 slide in housing starts take some of the zest out of the school market.

Highway construction will receive a lift in '62 from two sources: Increased federal aid; and a resurgence of tollroad construction contracts. In addition to getting more federal highway aid in fiscal '62 and '63, state highway departments continue to get the money

some weeks in advance of the quarter and they now know pretty well how much federal aid they can expect for fiscal '63 (see page 22). All this means that state highway departments can now plan to maintain their contracting on a continuing basis and the federal-aid highway program should run smoothly.

If there's a single sector of the heavy construction that's likely to call the tune for the whole in '62, it's industrial building. This market usually follows a wavy, cyclical pattern of expansion followed by contraction, then another expansion and so on.

But the 1959 steel strike distorted the last cycle, making it look like a low volcano with a wide crater. The strike temporarily discouraged industry from proposing new plants, thus leading to a downturn in contracts even as the steel strike was ending. By the time planning activity got going again, the volume of awards had dropped off substantially.

Now, ENR proposed work figures show that a new cycle is about to start—late this year or early in 1962. After an uptrend in plans starts, it takes six to nine months for enough work to clear the planning stage to push industrial contract awards up. This lead of less than one year falls short of giving a full picture of 1962, though within its range of nine months, it's quite accurate. Contractors with a big stake in this industrial market can keep telescopic sights on it by watching ENR's reports on new proposed industrial building.

The supply of long-term capital could prove to be an eventual brake on the expansion of construction demand next year. Heavy U. S. Treasury borrowing in the capital markets to finance the Administration's multi-billion-dollar deficit casts its shadow on others.

Money to finance new construction has become gradually dearer in recent weeks and this uptrend is probably going to linger with the market in 1962. The firming up is most noticeable for tax-exempt bonds sold by state and local governments. Recognized indexes have already moved up to cancel about one-half the 1960 decline in interest rates. While state and local governments might get chary about borrowing to finance new projects if interest costs were to climb back to their late '59 high, federal aid should take much of the strain off financing a 10% rise in state and municipal construction in '62.

Business, on the other hand, isn't likely to build fast enough to put itself in a capital bind. Depreciation reserves can take care of most of the construction and equipment bills. Moreover, even a 20% increase in borrowing and corporate security sales for construction money wouldn't bring this demand close up to the high volume in the 1956-58 period of industrial expansion.

Home mortgage interest rates have eased this year, true, but mainly at the top of the scale. They are perhaps the stickiest of interest rates and haven't followed the saucer pattern of other borrowing costs this year.

A small rise in mass housing next year, however, is likely to be financed with no strain by insurance companies, union pension funds, or other institutional lenders taking mortgages on new apartment projects. Moreover, the Federal National Mortgage Administration is standing by with over $1 billion in funds to buy government-insured mortgages, thus freeing other capital for reinvestment in new mortgages.

In 1963, ENR's preliminary forecast sees several changes in the "mix" of heavy construction volume (see table). But total volume is likely to hold to about the same as in 1962. Two elements of the market make 1963's preliminary forecast subject to dramatic change:

- Federal construction awards for test and launching complexes for the manned space flight program could be much greater than the one-half billion included in this figure.
- The industrial building expansion now in the making could take a different shape than this forecast assumes (downturn in '63).

Heavy Construction Contracts Forecast for 1962 and 1963 (in millions)

ENR 50 states total	1960 Actual	1961 Estimate	Change '60–'61 %	1962 Forecast	Change '61–'62 %	1963 Forecast (Prelim)	Change '62–'63 %
All Heavy Construction	$22,654	$23,055	+ 2	$25,630	+11	$25,575	0
By Ownership							
PRIVATE	11,847	11,275	− 5	12,500	+11	12,100	− 3
PUBLIC	10,807	11,780	+ 9	13,130	+11	13,475	+ 3
State & Municipal	8,350	9,000	+ 8	9,930	+10	10,175	+ 2
Federal	2,457	2,780	+13	3,200	+15	3,300	+ 3
By Type—Public							
Waterworks	455	450	− 1	510	+13	560	+10
Sewerage	619	770	+24	830	+ 8	900	+ 8
Bridges*	794	610	−23	650	+ 7	675	+ 4
Highways	3,401	4,000	+18	4,300	+ 6	4,450	+ 3
Earthwork—dams—waterways	780	975	+25	1,175	+21	1,250	+ 6
Buildings, total	3,299	3,625	+10	4,115	+14	4,015	− 2
Other than housing	2,564	2,800	+ 9	3,250	+16	3,100	− 5
Housing	735	825	+12	865	+ 5	915	+ 6
Unclassified†	1,467	1,350	− 8	1,550	+15	1,625	+ 5
PRIVATE							
Buildings:							
Mass Housing	5,512	5,100	− 7	5,300	+ 4	5,000	− 6
Commercial	2,539	2,850	+12	3,200	+12	3,400	+ 6
Industrial	2,792	2,825	+ 1	3,450	+22	3,200	− 7
Unclassified‡	996	500	−50	550	+10	500	− 9

* Includes private bridges totaling $8.7 mil. in '60, $1 mil. estimated for '61 and none included in forecasts of '62 or '63.
† Mainly airports, missile and space vehicle bases and tunnels
‡ Mainly pipelines, power transmission lines and private hydro.

Atlanta Reaches for Rapid Transit

The Atlanta Regional Metropolitan Planning Commission has recommended construction of a $200-million rapid transit system with 32 stations and 60 miles of track. The ultimate system would consist of 97 miles of trunk lines capable of indefinite expansion as needs develop.

The system will be needed in the next 10 years to meet the transportation requirements of a rapid growth in population and industry, according to the commission. Population of Atlanta is now more than 1 million, up 44% from 1950.

The system would serve Atlanta and the five surrounding counties—Fulton, Cobb, Gwinnett, DeKalb and Clayton. Through service is planned to connect Marietta, Norcross, North Druid Hills, Avondale and Forest Park with a centrally located transit center in downtown Atlanta.

A 32-page report just issued by the commission says, "All stations would be provided with expeditious feed-in facilities to the neighborhoods and to commercial and industrial centers. In order to attract and hold a sufficient number of riders from upper and middle income brackets, quality, comfort, speed and dependability must be emphasized. This should include such services as automatically controlled schedules, air conditioning and monthly billing for credit card customers."

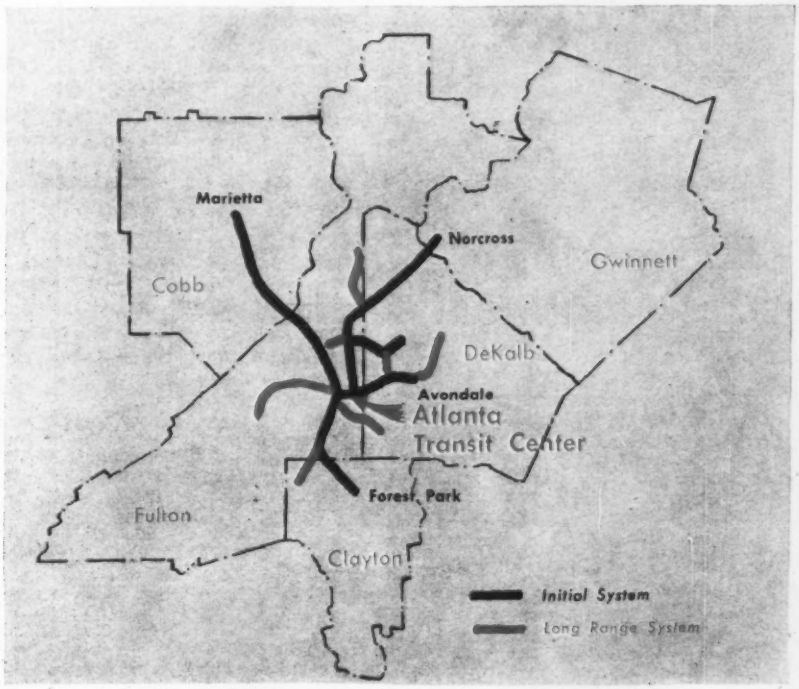
The commission believes the desired characteristics of a new rapid transit system can best be met by "lightweight electrically powered, automated vehicles with steel or rubber-tired wheels operating on two rails of steel or concrete-steel, and centrally controlled by an electronic computer."

Most of the new system would be located on railroad rights-of-way. Seven major railroad companies serve Atlanta. Their lines generally follow the major corridors of urban growth radiating in all directions from the central city. Two short sections of the transit system would be on new rights-of-way. A low-priority line could occupy the median of a planned expressway.

Over-all schedule speeds of at least 45 mph (including stops) are planned at all times, including peak hours.

Feed-in routes to rapid transit stations could include systems of loop buses plus automobile parking lots adjacent to the station.

Destination of most transit riders going to and from the central city would be within walking distance of the transit center. If necessary, the rider could make use of a secondary distribution system consisting of surface buses or moving sidewalks or both.



Initial 60-mile rapid transit system would serve five county area.

The commission is a government-supported agency that includes Atlanta and the five counties. Its recommendations are not binding on the local govments concerned.

First step in putting the commission's recommendations into effect would be the creation of a regional transportation district by the state's general assembly, acting at the request of local governments. The commission suggested public ownership with an option for private management. It is believed that federal and, possibly, state aid will be necessary.

Financing of the proposed system remains to be determined. "The plan is based on need, not on available local funds," the commission said.

The timetable developed by the commission calls for construction of the system during 1966-69. Operation of the initial 60-mile system would begin in 1969.

Transit Agency Calls for Ideas

The National Capital Transportation Agency has asked more than 100 American manufacturers for ideas that will help it develop a new type of rapid transit system for the 2,000-sq-mi. Washington, D. C., metropolitan area.

Stanley D. Forsythe, chief engineer for the Agency, wrote the manufacturers that the Washington area, because it is only beginning to work on an express transit system, is ready "to take advantage of any new techniques, processes or other technological developments" which are already available or are to be available shortly.

He said the Agency is interested in new design and system concepts as well as hardware. He specifically mentioned as one possibility development of a rubber-tired vehicle capable of operating singly or in trains on a raised rail or in concrete troughs and operating in subways or on surface private rights-of-way.

Mr. Forsythe said that while the Agency has not settled on any system, it leans strongly toward the rubber-tired train concept. Such a vehicle would be more economical and more flexible in its operations than the conventional train on a steel rail. The cost of a single unit probably would fall somewhere between the $30,000 price for a first class bus and $90,000 for the latest rail commuter cars.

The rubber-tired train vehicles probably would eventually be adapted for use on city streets also. The vehicles would operate individually collecting passengers in outlying areas, then be coupled together into trains for high-speed trips downtown.

1963 Highway Funds: Most Are Up

State and Region	INTERSTATE 1963 $ Millions	1962	Chg. %	"ABC"* 1963 $ Millions	1962	Chg. %	TOTAL FEDERAL AID* 1963 $ Millions	1962	Chg. %
U.S. TOTAL	2,370.0	2,178.0	+ 9	907.2	859.4	+ 6	3,277.2	3,037.4	+ 8
NEW ENGLAND	132.5	140.3	- 6	44.2	39.6	+12	176.7	179.9	- 2
Maine	11.3	11.1	+ 2	6.1	5.7	+ 6	17.4	16.9	+ 3
New Hampshire	10.7	11.9	-10	4.1	4.0	+ 1	14.8	16.0	- 7
Vermont	16.5	20.4	-19	3.8	3.5	+ 9	20.3	23.9	-15
Massachusetts	51.3	60.3	-15	15.8	14.4	+10	67.1	74.7	-10
Rhode Island	8.8	10.1	-13	4.9	4.5	+ 9	13.7	14.6	- 6
Connecticut	33.8	26.4	+28	9.5	7.4	+28	43.3	33.9	+28
MIDDLE ATLANTIC	370.0	343.5	+ 8	130.7	121.5	+ 8	500.7	465.0	+ 8
New York	113.4	107.3	+ 6	53.1	50.0	+ 6	166.5	157.2	+ 6
New Jersey	62.4	70.1	-11	18.3	16.6	+10	80.7	86.7	- 7
Pennsylvania	107.1	88.3	+21	39.8	36.9	+ 8	146.9	125.2	+17
Maryland	43.8	48.8	-10	10.5	9.9	+ 6	54.3	58.7	- 7
District of Columbia	34.4	21.5	+60	5.0	4.5	+11	39.4	26.0	+52
Delaware	8.9	7.6	+17	4.0	3.7	+ 8	12.9	11.3	+14
SOUTH	499.6	482.8	+ 3	173.9	168.6	+ 3	673.5	651.4	+ 3
Virginia	72.7	91.8	-21	17.6	16.5	+ 6	90.3	108.3	-17
West Virginia	36.0	27.1	+33	8.5	8.1	+ 5	44.5	35.3	+26
North Carolina	19.6	11.7	+67	21.4	20.1	+ 6	41.0	31.8	+29
South Carolina	20.7	17.8	+16	11.5	11.6	- 1	32.2	29.4	+10
Georgia	44.1	52.3	-16	21.4	20.5	+ 5	65.5	72.7	-10
Florida	49.7	56.1	-12	18.5	18.7	- 1	68.2	74.9	- 9
Alabama	49.5	42.7	+16	16.5	16.0	+ 3	66.0	58.7	+12
Mississippi	29.1	23.8	+22	12.7	13.3	- 4	41.8	37.0	+13
Louisiana	69.1	57.2	+21	14.1	13.5	+ 5	83.2	70.6	+18
Kentucky	48.8	38.1	+28	14.4	13.8	+ 4	63.2	51.9	+22
Tennessee	60.3	64.2	- 6	17.3	16.5	+ 5	77.6	80.7	- 4
MIDDLE WEST	461.9	422.5	+ 9	146.3	140.5	+ 4	608.2	562.9	+ 8
Ohio	163.3	141.1	+16	35.8	33.7	+ 6	199.1	174.7	+14
Indiana	59.3	62.5	- 6	21.0	20.0	+ 5	80.3	82.5	- 3
Illinois	124.9	111.1	+12	38.8	36.6	+ 6	163.7	147.7	+11
Wisconsin	21.1	22.8	- 7	20.2	19.0	+ 6	41.4	41.8	- 1
Michigan	93.3	85.1	+10	30.5	31.2	- 2	123.8	116.3	+ 6
MISS. TO ROCKIES	475.4	403.6	+18	246.4	232.5	+ 6	721.8	636.0	+13
Minnesota	61.9	40.8	+52	21.9	21.7	+ 1	83.8	62.5	+34
Iowa	30.3	20.6	+47	18.7	17.6	+ 6	49.0	38.2	+28
Missouri	61.2	61.8	- 1	23.8	22.0	+ 8	85.0	83.8	+ 1
Arkansas	25.1	21.5	+16	11.6	11.1	+ 4	36.7	32.6	+13
North Dakota	10.6	9.6	+10	8.9	8.9	0	19.5	18.5	+ 5
South Dakota	15.7	9.2	+71	9.9	9.9	0	25.6	19.1	+34
Nebraska	14.0	13.4	+ 5	14.5	13.3	+ 9	28.5	26.7	+ 7
Kansas	18.6	19.4	- 4	18.0	17.1	+ 6	36.6	36.4	+ 1
Oklahoma	28.8	19.7	+46	16.7	15.6	+ 7	45.5	35.2	+29
Texas	108.3	97.8	+11	53.1	50.4	+ 5	161.4	148.3	+ 9
Montana	22.4	24.6	- 9	13.6	12.6	+ 8	36.0	37.3	- 3
Wyoming	23.0	22.5	+ 2	8.5	7.7	+11	31.5	30.2	+ 4
Colorado	31.7	16.8	+89	14.4	13.0	+10	46.1	29.8	+55
New Mexico	23.9	25.9	- 8	12.8	11.4	+12	36.7	37.4	- 2
FAR WEST	430.7	385.3	+12	165.7	156.8	+ 6	596.4	542.1	+10
Idaho	11.2	14.9	-25	8.4	8.0	+ 5	19.6	23.0	-15
Utah	34.6	20.2	+71	9.6	8.7	+10	44.2	29.0	+52
Arizona	33.6	29.6	+14	12.8	11.5	+11	46.4	41.0	+13
Nevada	12.1	11.3	+ 7	8.3	8.1	+ 3	20.4	19.4	+ 5
Washington	49.9	39.2	+27	14.6	13.8	+ 6	64.5	53.0	+22
Oregon	41.6	37.5	+11	12.9	12.2	+ 6	54.5	49.7	+10
California	228.8	220.1	+ 4	57.6	53.5	+ 8	286.4	273.6	+ 5
Alaska	0	0	0	37.1	37.0	+ 0.3	37.1	37.0	+ 0.3
Hawaii	18.8	12.4	+52	4.4	4.0	+10	23.2	16.4	+41

* Includes estimate of fiscal '63 ABC funds. Bureau of Public Roads apportioned only 75% in August '61, withholding balance temporarily until complete data are available for the apportionment formula.

Federal aid for highways will rise about 8% for the 50 states and the District of Columbia during fiscal 1963, as compared with the current fiscal year (1962).

However, the change in federal aid funds is not uniform across the country, based on the apportionment announced last month by the Bureau of Public Roads (ENR Aug. 24, p. 25).

About half the states will get an increase of more than 8%. About one-third of the states will get less in fiscal 1963 than they are getting this year (see table).

The table contains ENR's estimates of apportionments of full federal-aid funds for 1963 for the ABC systems, even though BPR actually apportioned only 75% of the year's total. The other 25% will be apportioned later, after the Post Office Department reports rural free delivery and star route mileage in each state, as of June, 1961.

Sharpest increases will go generally to western and southern states. Colorado will be up a whopping 55% ($16.3 million) and Utah a strong 52% ($15.2 million). In the east, Pennsylvania and Connecticut will chalk up sizable gains. Three big midwestern states—Ohio, Illinois and Minnesota—will benefit sizably from the new apportionment.

Sharpest decrease will be in Virginia, down 17% ($18 million).

State Needs $11 Billion For '80 Highway Demands

Michigan must spend $11 billion on highways and streets between now and 1980 to keep pace with anticipated population and travel trends.

That is the major fact revealed by a 3-year highway needs study done by the state highway department in cooperation with the county road association and the Michigan Municipal League.

State Highway Commissioner John C. Mackie says the cost of building, modernizing and maintaining the state's roads and streets up to 1980 would include $5.3 billion for state highways, $3.6 billion for county roads and $2.1 billion for city streets.

Highway revenues for the 20-year period are expected to total $8.1 billion: this will include $4.9 billion from highway user taxes and fees; $1.9 billion from federal aid; and $1.2 billion in local general funds and taxes.

Due late this year is the report of a fiscal study designed to determine how to close the $2.9-billion gap between anticipated revenues and estimated needs.

Consultants State Their Position

A joint committee created by five national engineering societies has come up with a set of principles to apply to the use of engineers and architects in private practice on public works financed by local, state and federal departments and agencies.

Noting that "the engineering needs of government historically have been obtained through the combined utilization of publicly employed engineering staffs and engineers in private enterprise" the committee believes that the fundamental principles that should govern this procedure are sometimes forgotten. These principles are stated by the committee as follows:

- Private enterprise is the basic, traditional foundation of the American way of life and must be preserved and encouraged.
- Government should govern, not compete with its citizens.
- The following stated general policy of the Federal Government is a sound policy for government at any level: ". . . the Federal Government will not start or carry on any commercial-industrial activity to provide a service or product for its own use if such product or service can be procured from private enterprise through ordinary business channels."
- Engineering for government at all levels is best accomplished by the effective use of the professional skills and experiences of engineers both in private practice and in government service.
- Staffing of public agencies for engineering purposes beyond reasonable levels necessary to insure continuity, effective planning, administration, and control of public works projects is unwarranted.
- In the national interest, a healthy reservoir of engineering talent in all its branches must always be maintained so that in emergencies sufficient engineering manpower can be immediately organized to design and oversee construction of vitally essential military facilities and public works. Recent wars have demonstrated the inestimable value of the rapid availability of thousands of competent engineers in private practice.
- The expanding economy and technology of the nation are dependent upon expansion of the many elements of private enterprise. Government policies should provide a healthy atmosphere for development, expansion and maintenance of private enterprise in engineering, in construction and in industry.
- Governmental agencies should contract for engineering services with highly-qualified engineers in private practice, consistent with the public interest, national security, and continuity of governmental programs and the requirements for quality, safety, over-all economy, and time-benefit relationships.

The chairman of the committee is James P. Exum of New York, who with R. H. Tatlow, III, of New York, represents the American Institute of Consulting Engineers.

Other members of the committee are Maurice N. Quade, New York, and George B. Hills, Jacksonville, representing the engineering division of the American Road Builders' Association; Mason G. Lockwood, Houston, and Gustave J. Requardt, Baltimore, representing the American Society of Civil Engineers; Hueston M. Smith, St. Louis, and C. E. Evanson, Chicago, representing the Consulting Engineers Council; L. M. VanDoren, Topeka, and Stanley A. Michael, Omaha, representing the National Society of Professional Engineers.

Tighter Rein on Niagara Falls

Construction has started on a $7-million extension to the International Control Dam on the upper Niagara River.

The existing dam, a 1,550-ft-long gated structure, runs perpendicular to the Canadian shoreline about a mile above the Horseshoe Falls. The dam does not run from shore to shore, but extends into the stream from one shore.

The 600-ft extension will have five submergible gates similar to the 13 that form the existing dam. The longer dam will be needed to maintain river pool and control flow over the falls when the New York State Power Authority's Niagara Power Project reaches full capacity next year.

The existing dam performs this same function, but will be inadequate when the 2.19-million-kw U.S. hydro plant goes on the line and begins withdrawing the full share of Niagara River flow permitted under a 1950 U.S.-Canadian treaty.

The project includes a 3,700-ft-long guide wall extending upstream and downstream from the dam to form a high-velocity channel 300 ft wide.

The channel serves a dual purpose—the 1,700-ft upstream portion will prevent ice from collecting at the power intakes for the Canadian hydro plants; the 2,000-ft downstream wall will guide the ice, once it's past the dam, directly over the falls.

ASCE, Societies Library Move to New Headquarters

The American Society of Civil Engineers and the Engineering Societies Library moved into the United Engineering Center at 345 E. 47th St., New York City, last week. They were the vanguard of five engineering founder societies and ten associated societies that will soon occupy the new 20-story edifice, including two top floors for mechanical equipment.

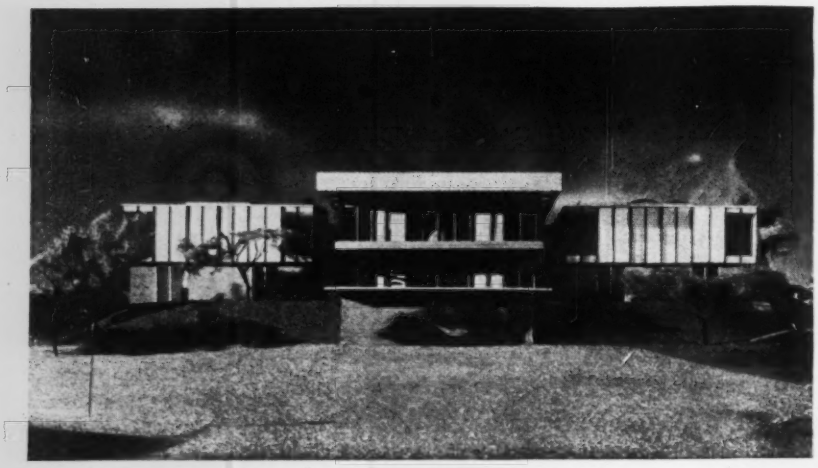
ASCE had occupied its former office at 33 W. 39th St., the Engineering Societies Building, since 1917. Before that, the society maintained offices in its own building at 220 W. 57th St., which it still owns. ASCE will occupy the 17th and 18th floors.

The library and a large meeting room will be in the 3-story base.

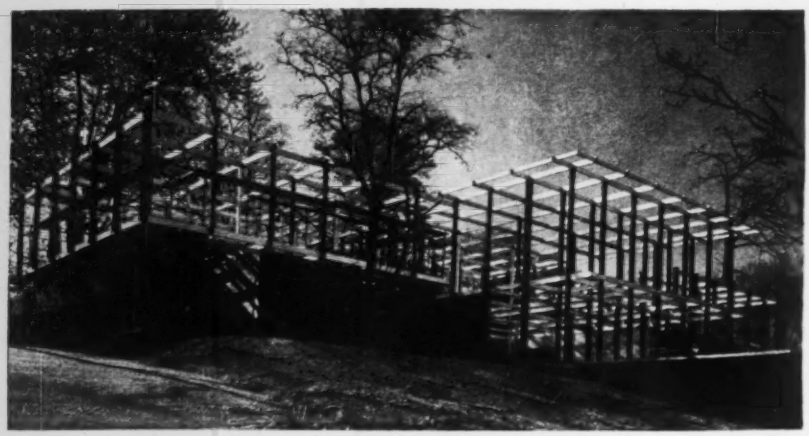
United Engineering Trustees, Inc., will own and operate the new headquarters building. Contributions from industry and individual engineers financed the major part of its $12 million cost.

The building is on United Nations Plaza, overlooking the East River and the UN complex. It has a welded steel frame, cantilevered floors and blue glass curtain walls (ENR July 28, 1960, p.30). The building is air conditioned throughout.

Shreve, Lamb & Harmon Associates are the architects; Seelye, Stevenson, Value & Knecht, the structural engineers; and Jaros, Baum & Bolles, the mechanical engineers. Turner Construction Co. is the general contractor. All are New York City firms.



House Pioneers with . . .



Aluminum Posts and Joists

A $250,000 house featuring aluminum structural framing will be a prototype for many similar houses, if the hopes of an aluminum fabricator come true.

Extruded rectangular aluminum tubes and channels replace wood studs and joists in the suburban Detroit home of David N. Insley, president of Fisher-Insley Corp. Fisher-Insley fabricated the aluminum sections. Principal structural members are made of aluminum alloy 6061-T6.

The tubular sections are 2x7 in. in cross section. Tubular posts are spaced 6 ft c-c and connected with self-tapping screws. Joist-post connections consist of a channel member screwed to the tubular post through its web. Tubular joists fit over the channel flanges and are screwed to them.

Supporting the floor as well as roof construction over the garage is a 14-in.-deep, prestressed aluminum girder built up of four 7-in. channels. To form the girder, a pair of channels, connected with 2-in. spacers between webs, were stacked with webs vertical on top of another similarly connected pair of channels.

To prestress the girder, the fabricator jacked negative bending moment into it with a hydraulic jack applied at midspan. The loosely bolted aluminum flanges of the channel pairs were allowed to slide along each other during the jacking operation. Then, the fabricator reamed holes in the flanges and bolted them tight, making a structural unit out of the two pairs of channels. These bolts held the 1½-in. camber and the prestress in the girder after the jacking force was removed.

The exterior posts get a baked-on enamel finish exposed in relief in the finished structure. They will frame exterior wall panels with marble-chip aggregate bonded to asbestos-cement board.

Roof and floor decks are plywood panels of ⅝-in. and ¾-in. thickness, screwed into the aluminum framing.

Architects Karl Hans Greimel & Associates of Detroit designed the pioneering house. Charles Fromm Co. of Detroit is the general contractor.

Stemming the Tide

Dam holds back ocean, river pumped over dam

Water over the dam is one thing, but water over the dam in reverse and against hurricane tides calls for something more than routine equipment.

The New England Division, Corps of Engineers is buying just that—five big vertical propeller pumps to lift 4.5 billion gallons of water per day over the Fox Point Hurricane Dam at Providence, R.I.

Worthington Corp., Harrison, N.J., got a $1.5-million contract from the Corps to build the pumps, each with a capacity of 1,400 cfs at an operating head of 20 ft.

Fox Point Dam is a 680-ft long structure that will run across the mouth of the Providence River. Purpose of the dam is to protect downtown Providence (built rather improvidently below sea level) from high water that has repeatedly flooded the city during hurricanes. When the storms hit, wind-driven ocean tides drive up the river, which bisects the city, and block normal river flow into the bay. As a result, the river overflows into the downtown business district.

One end of the dam will have three 40-ft-wide gates to pass normal river flow and tide waters. But when hurricane tides are forecast, the gates will be closed to keep the storm tides in Narragansett Bay from coming upriver.

The quintet of pumps, normally idle, will then go to work to lift the river flow over the dam and into the bay. The mammoth pumps will be located in the center of the dam. A 4,500-hp electric motor will drive each pump. The first unit will be delivered about midsummer of 1963.

In the meantime, Fairbanks, Morse & Co., Chicago, announced last week that the Corps of Engineers' Jacksonville District next month will activate four 152-in.-dia horizontal propeller pumps at the Central and Southern Florida Flood Control Project.

Until the Fox Point pumps were announced, both Fairbanks, Morse and the Corps had billed the 152-in. units as the largest ever built. The capacity of each of the Florida pumps is 1,040 cfs against an operating head of 4.5 ft. Power for each of these pumps is supplied by an 800 hp diesel engine.

All points considered, the Fox Point pumps are probably the largest ever built.

The over-all hurricane protection project will cost $11.9-million, and includes earth dikes on both sides of the concrete dam in the river. The state and the city will contribute $5 million of the cost.

Kariba Abutment to Be Beefed Up

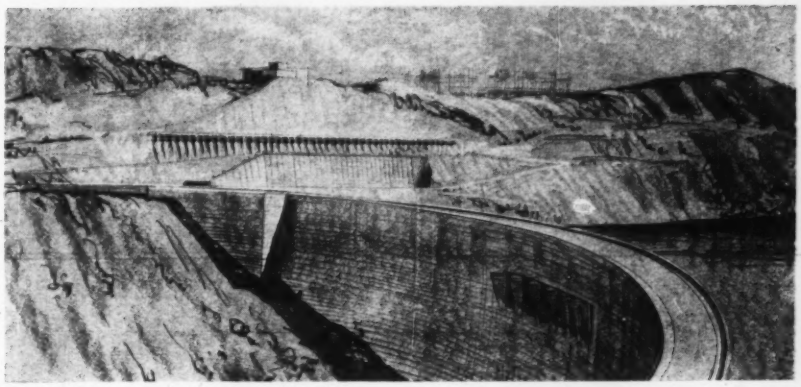
Kariba Dam will get an extra abutment block on its right flank to compensate for weaknesses uncovered in the foundation rock by recent tests.

The Federal Power Board of Rhodesia and Nyasaland, the agency responsible for the Zambezi River project, says the strengthening is necessary to insure complete safety of the structure when the reservoir fills completely. This will occur a year or more from now.

The dam is a concrete arch 420 ft high and 2,025 ft long at the crest. It is located in the Zambezi's Kariba Gorge, which divides Northern and Southern Rhodesia.

The abutment block will contain about 100,000 cu yd of concrete. The dam as designed and built (ENR Nov. 20, 1958, p. 30) contains 1.25 million cu yd.

Sir Alexander Gibb & Partners, of London, the consulting engineers on the Kariba project, said they had recognized since 1955 that a relatively small zone of weak quartzite high on the right abutment would have to be strengthened, but in view of the tight power production schedule, decided that any necessary work could safely be postponed. Recent checking, however, by seismic and other test equipment has shown the necessity for more strengthening than first envisioned, say the engineers.



Thrust block on far side will bypass weak rock zone.

The Gibb firm says the proposed gravity abutment block will transfer thrust from the weak zone to sound biotite gneiss, the type of rock supporting the remainder of the dam.

The weak zone has been undergoing some strengthening for the last 18 months. Some of the weaker rock, mica schist, has been replaced with concrete. Other parts of the rock have been strengthened by grouting.

The Kariba project will cost about $317 million, plus the cost of the abutment block. Initially it will have four 150,000-kw turbine-generators. A second powerhouse of the same capacity will be added later.

The project produced first power in the spring of 1960. Two units that went into operation under low head at that time will be converted to full-head operation while the abutment block is under construction.

Kariba Reservoir will be the world's second biggest—130 million acre-ft—four times that of Hoover Dam's Lake Mead, 15 million less than Russia's Bratsk Reservoir.

Around the World . . .

• **Congress to the rescue**—Up to now, $320,000 in private funds and $50,000 in state money have been spent on the memorial to the USS Arizona at Pearl Harbor (ENR June 8, p. 20). Last week, Congress voted $150,000 to complete it. Aim is dedication by Dec. 7, the 20th anniversary of the Japanese attack on Pearl Harbor.

• **Tube for Lake Washington?**—Consulting engineers Worthington-Christiani-Fenco have recommended construction of a traffic tube under the Lake Washington ship canal (Seattle). The 2,900-ft long tunnel would cost about $16 million, compared with about $11 million for a bridge.

• **Peruvian air lift**—U. S. Air Force planes have completed an airlift of more than 300 tons of heavy construction equipment over the Andes to the remote Amazon River basin in Peru. Peruvian government officials estimate the air lift saved four years of work in building roads, airports and housing in the interior.

• **Nigerian port to grow**—The Nigerian Port Authority has announced plans to build a $19-million wharf extension at Port Harcourt, Nigeria's second busiest harbor. The extension will provide four additional berths.

• **New piers for old**—The New Orleans Dock Board will begin modernization of 15 wharves in November. Included is a new $5-million, 1,200-ft long wharf to replace a 60-year-old pier now being demolished.

• **German equipment show**—The ninth annual BAUMA exhibition of building machinery and equipment and materials handling equipment is scheduled for mid-March in Munich. Deadline for applications for space from exhibitors is September 30.

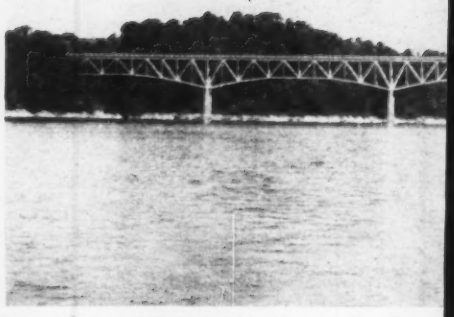
• **New use for A-bomb**—Underground lava dikes that impede the flow of groundwater and limit Hawaii's agricultural potential might be broken up by nuclear blasts, according to physicist Edward Teller, of the University of California.

• **Through channels**—The Federal Communications Commission has assigned, effective September 1, three radio frequencies exclusively for the control of traffic signals. Allocation of the frequencies is expected to increase sharply the use of radio-controlled signals and eliminate conflicts with private users in some cities.

• **Mississippi crossing**—Engineers of the Illinois Department of Public Works and Buildings have recommended a single-level, deck girder bridge to carry Interstate routes 55 and 70 over the Mississippi River between East St. Louis and St. Louis. Estimated total cost of the structure is $30 million.

• **Not a gram of centiment**—The decimal dollar doomed a House bill authorizing a $500,000 feasibility study of the metric system. An economy-minded congressman blocked the bill on the grounds that the half-million-dollar study is senseless since 90% of the world already uses the metric system.

Spalled and deteriorated surface of concrete deck on . . .



this 1,593-ft bridge across Cumber

Latex Modified Portland Cement

The Kentucky Department of Highways is resurfacing a major bridge with a latex modified portland cement mortar. Applications of this type are still in the experimental stage. However, laboratory and field tests indicate that more economical and longer lived concrete repair is possible through latex modification.

The bridge is a 1,593 ft long, two-lane deck truss that crosses a narrow section of Cumberland Lake in the southern part of the state. Built 11 years ago, its concrete deck is badly deteriorated.

Latex modified mortar has a bond shear greatly in excess of that of unmodified mortars. Its compressive tensile and flexural strengths are greater, and it is highly resistant to the corrosive action of oils, chemicals and salts. When properly formulated and applied, LMC mortar has a greater resistance to water absorption than an unmodified mortar and this improves its ability to withstand rapid freeze-thaw cycles.

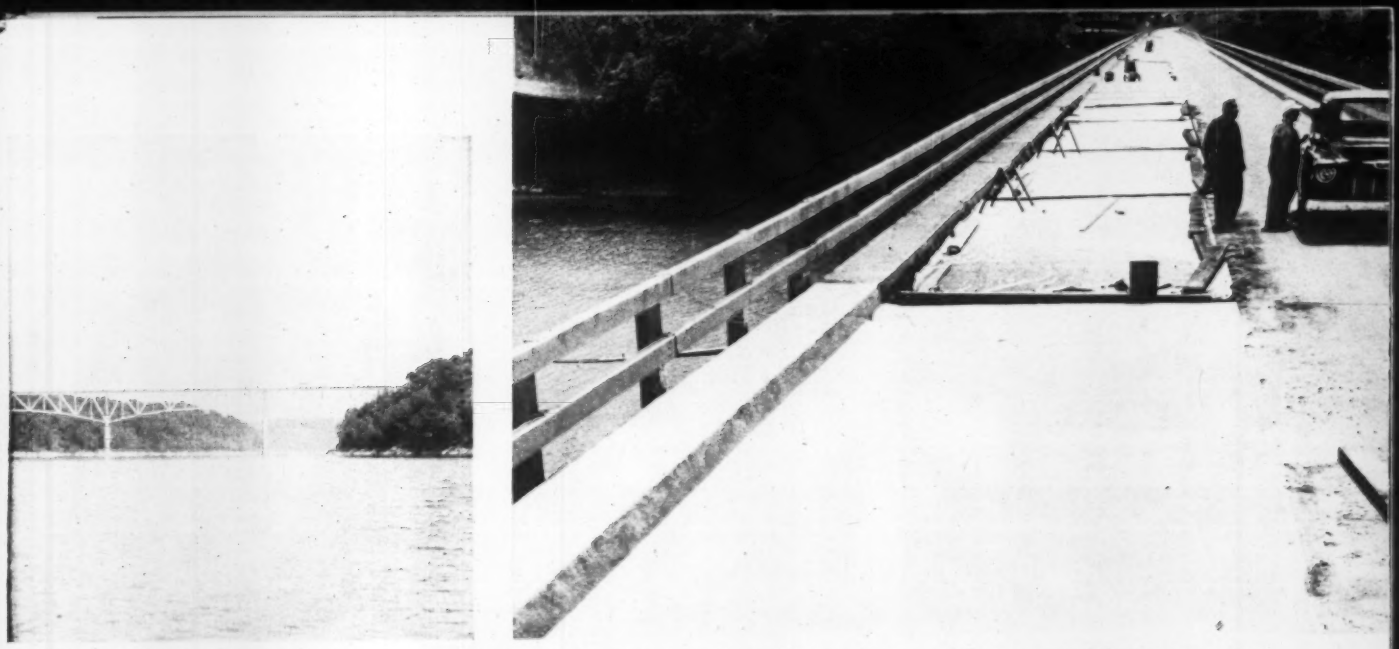
The cost of all materials used in repairing the 4,248 sq yd of the Kentucky bridge deck ranges between $.85 and $1.00 per sq yd. The variation stems from the use of two different latex formulations—one more expensive than the other. In both cases the cost of the latex is largely absorbed by the reduction in the amount of sand and cement needed when latex is used as opposed to that which would be needed for a conventional portland cement overlay. With the latex, only ½ in. of surfacing is needed; without it a minimum of 2 to 4 in. would be required.

The thinness of the coating has several other obvious advantages:

- It reduces the amount of old material that must be removed in cases where bridge surface grades must be maintained.
- It minimizes the increase in dead load that would result from a conventional overlay where such an overlay could be used.

HERE'S HOW: The surface of the deck is scarified.

SCREED GUIDE, ½ in. thick is anchored to roadway at edge of land.



land Lake in Kentucky . . . **was repaired with a ½-in. layer of latex modified mortar.**

Mortar Renews Bridge Deck

• It minimizes the problems incumbent on making an overlay grade meet existing installations such as curbs, manhole covers, drain boxes, gutter, and expansion joints.

On the other hand, latexes do not speed the curing of mortars. This means that an LMC surface must be protected from traffic for as long a time after installation as would a conventional portland cement concrete pavement. Thus, when roadway width and the demands of traffic do not permit the closing off of traffic lanes, the use of LMC mortars is impractical.

Nonetheless, the plus side of the LMC mortars has been so interesting that Arkansas, Maine, Massachusetts, Michigan, Ohio and New York have already made numerous test installations, and Illinois, Iowa, Minnesota, South Dakota and West Virginia are about to follow suit.

Although latexes—plastic particles suspended in water—are manufactured by many of the country's leading chemical houses, the two formulations used on the Kentucky bridge are both manufactured by Dow Chemical Co. of Midland, Mich. The less expensive (about $2.95 per gal.) is a styrene-butadiene product designated as Dow Latex 560. The other (at about $4.60 per gal) is a saran type latex (vinylidene-chloride) designated as 2144. Both are formulated to improve the characteristics of cement mortars, but to a different degree.

In laboratory tests, the 560 latex pushed the compressive strength of an unmodified mortar from 3,200 psi to 4,200 psi; the 2144 increased it to 5000 + psi. The 560 increased tensile strength from 400 psi to 500 psi: the 2144 moved it up to 900 psi. The flexural strength was increased by the 560 from between 400 and 500 psi to 1,250 psi, and by the 2144 to 1,250 psi. The bond strength was raised from 200 psi to 450 psi by the 560 and from 200 psi to 900 + psi by the 2144.

(Please turn the page)

DECK is then blown and swept clean of loose material.

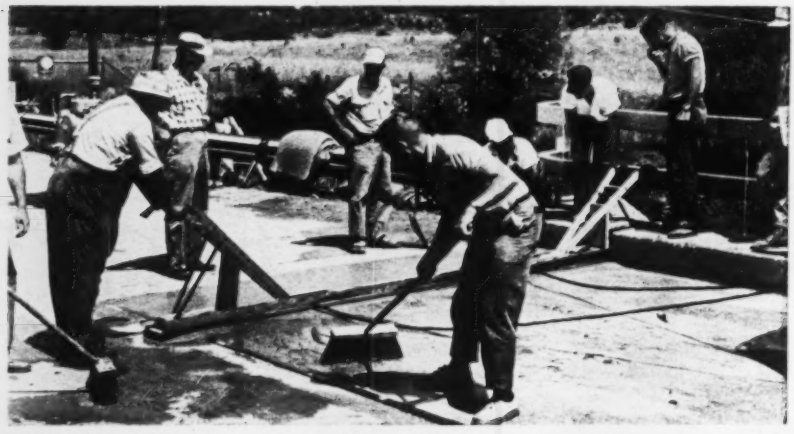
ROADWAY surface is then thoroughly soaked with water.

DEFOAMER is added to the latex.

LATEX is measured and a humectant added.

MIXTURE is poured into charged mixer.

LATEX MORTAR is spilled onto roadway.



WORKMEN BROOM mortar across deck to eliminate voids and insure good bond.

SURFACE is screeded and floated and covered with burlap.

EPOXY SPRAY gives added protection.

The methods of applying LMC mortars are exacting but simple. The surface must be clean, and cut to a sound substrate. On the Kentucky bridge this requires scarifying the surface to remove the top half inch of concrete and jack-hammering pits and spalls remaining after scarification. The surface is then blown and swept clean. Before the LMC mortar is applied the roadway surface is thoroughly wetted to prevent the substrate from absorbing moisture from the mortar. When the mortar is applied a thin coat of it must be brushed into the substrate to eliminate voids and give a good bond.

The mixing of mortar follows conventional patterns but special care must be taken to measure the proper proportions of all ingredients. Small amounts of water may be added to achieve the desired slump.

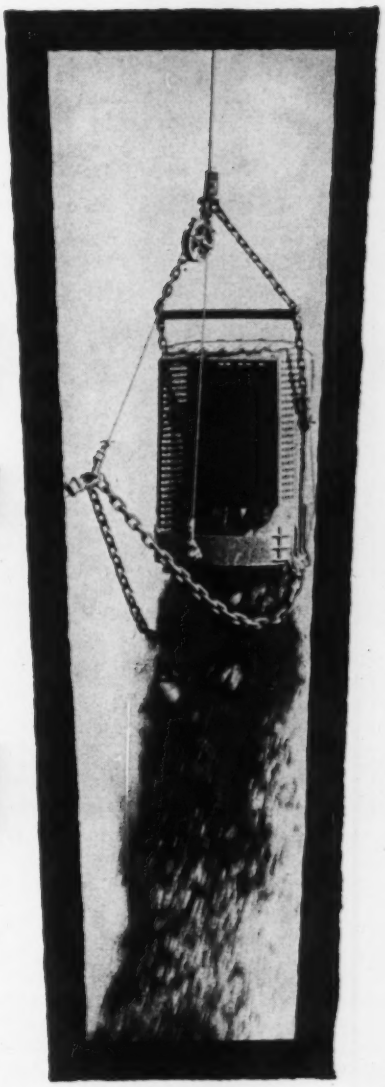
The mix ratio is 3½ gallons of latex to 282 lb of sand and one bag of portland cement. Before the latex is drawn from the 55 gal drum in which it is delivered, two quarts of a defoamer (in this case Dow Corning Antifoam B) are poured into the drum and thoroughly mixed. In addition, a quart of diethelene glycol is added as a humectant to the 3½ gal of latex used in each batch.

While the initial set of LMC mortars is not reached so rapidly as to give trouble, it does occur sooner than in unmodified cements. Therefore, there can be little delay in the finishing operations. On the Kentucky bridge, as a further experiment, some sections of the LMC deck are being given a seal and wear layer of Dow epoxy resin and silica sand.

The Kentucky Highway Department is resurfacing the bridge under the direction of Milton Evans, Jr., research engineer. Douglas Eash, chemist for Dow Chemical acts as technical advisor on latex and epoxy mortar uses.

MORE BITE PER BUCKET

MORE DIRT PER DOLLAR

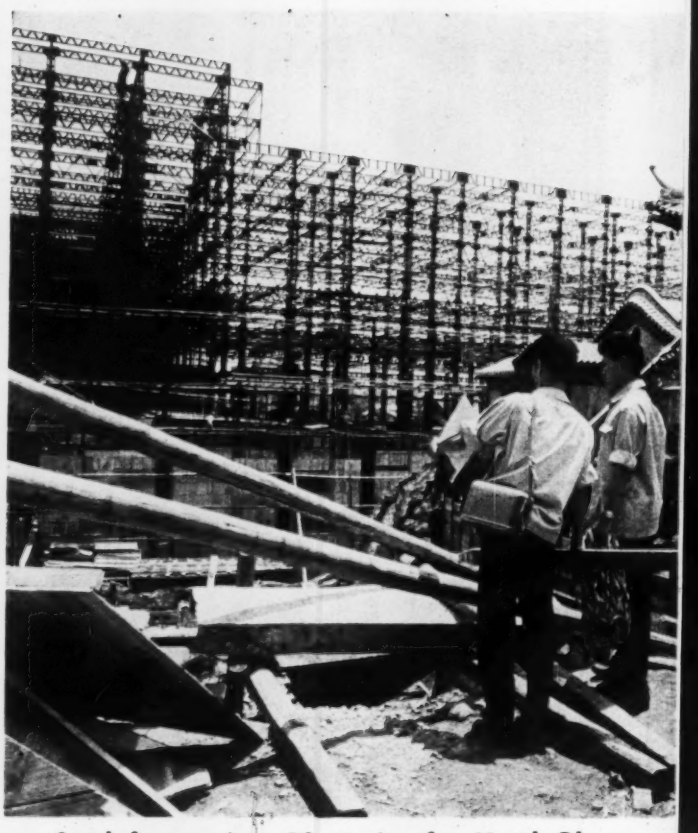


Hendrix Lightweight DRAGLINE BUCKETS

"A Type for Every Digging Purpose"...
¼ to 40 Cubic Yards-Perforated or Solid

HENDRIX MANUFACTURING CO., Inc.
MANSFIELD, LOUISIANA

Imperial Hotel has built annexes.



Steel frame rises 12 stories for Hotel Okura.

Tokyo's Tourist Boom Generates

Japan is enjoying—and suffering—a hotel-building boom.

By 1963, 350,000 tourists will visit the country annually. And the figure should top 700,000 for 1964 during the 18th Olympic Games in Tokyo.

Catering to foreign visitors has expanded into an immense industry in Japan. Currently, it is worth $200 million each year, though 10 years ago only 39,000 tourists visited the islands annually. With the Olympic Games ahead, a Transportation Ministry official says "There won't be enough rooms for visitors in hotels that are either operating now or are now under construction."

The government encourages Japanese hotel proprietors either to expand existing facilities or build new ones. Low-interest government loans are the stimulus. Biggest brake on hotel expansion has been the prohibitive cost of land. In Tokyo and Osaka, a tsubu (35 sq ft) sells for up to $5,000. Without government loans, hotel management would be a poor investment prospect.

With government prodding, more than a dozen luxury hotels have sprung up in the metropolitan Tokyo and Osaka areas in the last few years. The government loans (at 5.5% to 6.5% interest) met nearly 80% of the building costs.

• **Beginning of a boom**—The Imperial Hotel addition set off the construction boom in 1958 (ENR Aug. 14, 1958, p. 25). Two annexes increased the number of rooms from 250 to 900, with a total increased capacity of 1,470 guests.

None of the dozen other luxury hotels built in Tokyo since then has more than 500 rooms. Again, it is high construction and land costs that hold building down.

Construction cost per room for the Imperial addition was $20,000 three years ago. Now $33,000 per room is a common cost figure. And, in most cases, that is for ordinary reinforced concrete construction without frills. The only exceptions: air conditioners in the windows and fine rugs on the floors. But both are available in Japan at low cost.

Already operating in the new luxury group are Hotel New Japan, Ginza Tokyu Hotel and Marunouchi Hotel.

• **Olympic race**—Three more under way now are the Palace Hotel, Hotel Okura and Hilton Hotel. All will supposedly beat the Olympic deadline. Their openings are set for late this year, mid-1962 and early 1963.

The Palace Hotel is going up across the street from the Imperial Palace in the fashionable business center of Tokyo. Takenaka Construction and Engineering Co. is the builder. The 450-room hotel is 12 stories high with three below grade and nine above, plus a four-story tower on top. Built on 2.6 acres, it will cost $11.6 million.

Its design keeps 30% of the hotel's 714,600 sq ft open as public areas, including a banquet room on the second floor and a cocktail lounge at roof level.

The roof lounge with its palace view is a sign of changing times in Japan. Before the war, Japanese were prohibited from building tall structures that would overlook the Imperial Palace grounds. Now the only restriction is the 102-ft height limit imposed by the earthquake design code.

• **The Tokyo "Y"**—Hotel Okura is a Y-shaped 12-story building, with three

It will have 550 rooms.

Hotel Boom

basements, located opposite the U. S. Embassy on Reinanzaka Hill. Because of the side-hill site, the main entrance is at the fifth level. A 500-car garage in the lowest basement level opens at grade on the lower side of the building.

In this case, the site is comparatively huge. The 550-room hotel is on a 6-acre site. Total cost will be over $17 million. The builder is Taisei Construction and Engineering Co.

Kihichiro Okura, owner of both the hotel and Taisei Construction, is no newcomer to the business. His family built the original Frank Lloyd Wright-designed Imperial Hotel in the 20's.

Construction has just started on the 14-story Hilton Hotel. Including the price of its 3-acre site, near the Sano Shrine and Japanese Diet Building, the 506-room hotel will cost $12.5 million. The owner, Tokyo Hilton Co., is a 100% owned subsidiary of the Tokyo Electric Express Railway Ltd. (Tokyu). After the hotel is finished, management will be turned over to Hilton Hotels international. Tokyu also owns the Ginza Tokyu Hotel and plans to build two more hotels soon in Yokohoma and Shimoda.

NEW JAPAN, luxury hotel, already is open for business.

GINZA TOKYU HOTEL (above) and Marunouchi Hotel (below) also add to Tokyo's supply of luxury rooms.

Texas' first skyscraper was sound and ideally sited . . .

so its owners doubled

New Facade and an Addition Give

Texas' first "skyscraper", located in Dallas, has been given a second lease on life through a $2 million addition and alteration. It was the first building west of the Mississipi to be erected with an all-steel frame and masonry exterior. Now the half-century-old structure has been stripped down to frame, floors and walls and incorporated in a completely new building.

The 15-story home office building of the Practorian Mutual Life Insurance Company was built in 1906. After 54 years, its site had become one of the most valuable in the city. Praetorian wanted to maintain this prime location and hold on to some first-class tenants. So the company made plans to modernize the elderly landmark to compete with the city's many new office structures, and when an adjoining site became available, they decided to double the size of the building.

To study the question of remodeling vs. demolishing and building anew, the firm brought in Ronald B. Roorbach, an engineer with 27 years of background in property management.

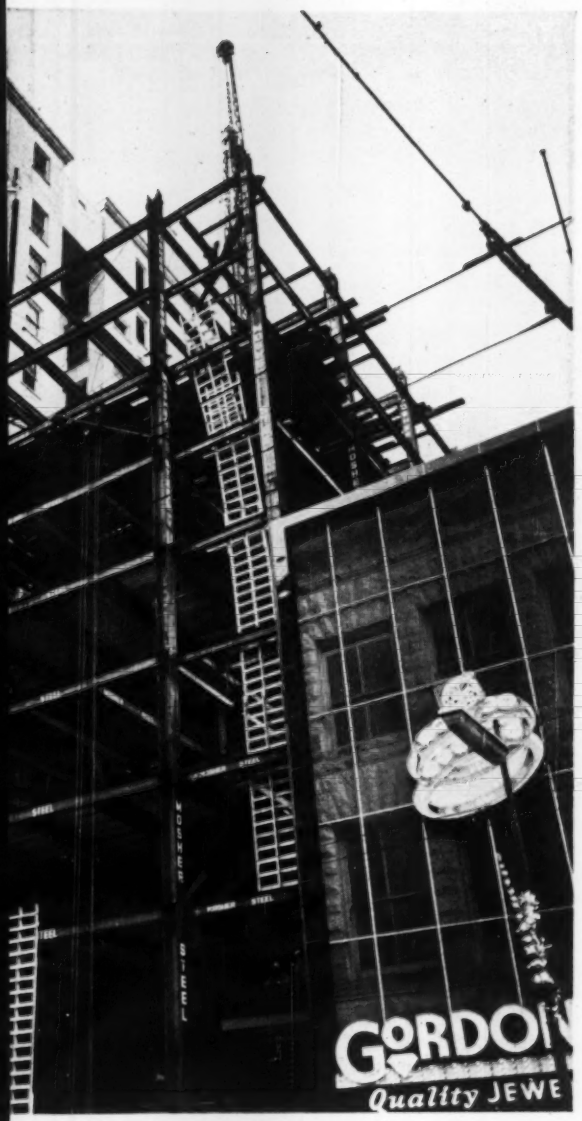
Roorbach found it would be economical to keep tenants in the existing building during construction of the addition. Aside from this, substantial savings could be made both on demolition of the old building and framing of the new by using the existing steel framework and basic masonry, which tests showed to be structurally sound.

On this basis, the architect developed plans for a 17-story addition tied into the remodeled existing building.

• **Plenty of problems**—Once on the job, general contractor Henry C. Beck Co. had problems far beyond shifting tenants in the existing building:

• For the addition, Beck had to excavate a 50x100-ft hole 16 ft deep, surrounded on three sides by old buildings. In many cases, old footings crossed property lines into the new excavation.

• Working from this 50-ft hole, the builder framed the 17-story addition, then completed the combined 100x100-ft structure from the top down in order



its size, remodelled its interior and . . .

wrapped old and new wings with a new facing.

New Life to a Vintage Building

to maintain mechanical services in the old building. The new metal curtain wall also had to be erected from the top down.

• No structural plan was available of the existing building. In tying it to the new, it was impossible to know how to make the connections until the wall of the old building was knocked out, floor by floor.

• Beck had to schedule more tightly than for a normal job not only because of tenant occupancy, but because of a limited 50-ft access to the 100x100-ft job and only one outside material hoist. And the job is on one of the busiest corners in Dallas. As a result, there was about 20% more night work than normal. Also, all forms had to be fabricated off the site.

• Three adjacent buildings had 3- to 12-ft deep foundations, which in many cases crossed the property line. The contractor had to cut off the existing footings of the adjacent buildings, shore up the buildings, then underpin them and the existing footings of the old Praetorian building before constructing the footings for the new building.

• **Excavation by saw**—As the new excavation was opened, a strata of solid blue limestone was uncovered. This had to be excavated to a depth of 16 ft. Because of the extremely narrow hole and the adjacent old bearing-wall buildings, it was impossible to use dynamite. And since the rock was seamy, a relieving trench 6-in. wide by 16-ft deep was cut to protect the ground under these buildings during excavation. Then the limestone was cut with a mining rock saw, removed with a plow-ripping machine and broken up before loading.

A mud seam was uncovered under the existing footings of the old building. This had to be cored out and pressure-grouted, with about 6,000 lb of iron-filing pressure grout used to fill 120 holes under the old footings. These footings were tied back to bedrock.

• **Steel trouble**—When steel erection started on the addition, the contractor

DRILL
REINFORCED CONCRETE
3 TIMES FASTER than
ANY OTHER METHOD with

Cyclo-Core®

Multi-Carbide Tipped
Rotary
MASONRY
BITS

Stock Sizes
¼" to 6" diameters.
Larger diameters up to
14" available on
request.

Advanced, *Free Cutting* design for fast, low cost drilling in any masonry from hard brick and tile to hard concrete . . . even with reinforcing rods.

Better because:

1. Individual spiral flute for each cutting tip assures positive dust removal from the cutting zone.
2. Improved orientation of carbide tips with increased steel support for easy cutting of reinforcing rods.
3. All cutting edges are precision ground—all teeth on the same plane.
4. Specially selected grade of carbide for each cutting tip.
5. Heat treated alloy steel body and shank for longer bit life.

NEW ENGLAND CARBIDE

Cyclo-Core®
MASONRY BITS
may be used in
ELECTRIC ROTARY IMPACT
DRILLS
such as STANLEY, SKIL, SYNTRON, BOSCH, etc.

AVAILABLE AT YOUR
INDUSTRIAL
DISTRIBUTOR
OR WRITE DIRECT
FOR INFORMATION

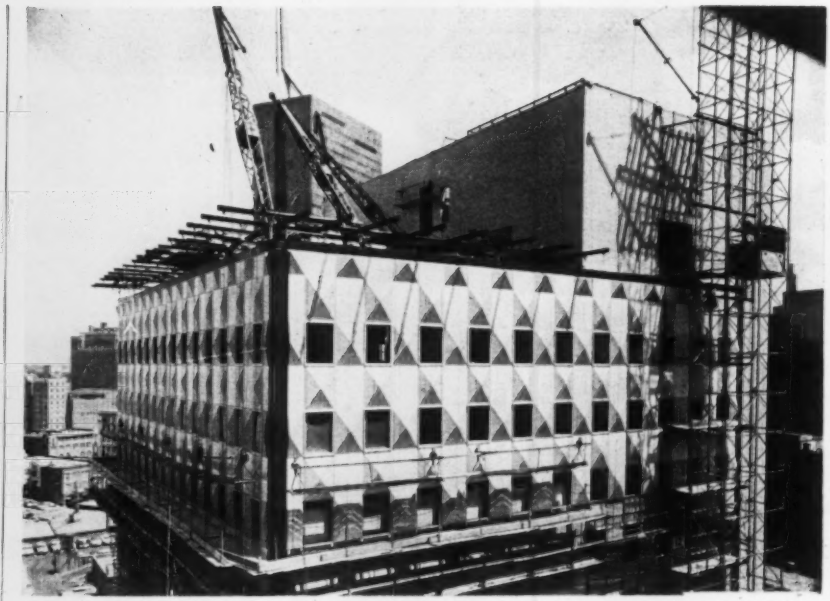
NEW ENGLAND
Carbide Tool Co., Inc.
55H Commercial St.
Medford 55, Mass.

Please send me free copy of your "DRILLING REINFORCED CONCRETE" Brochure

Name .....

Address .....

City ..... Zone..... State .....



NEW CURTAIN WALL went directly over old masonry of the original building. Contractor worked from top down to close in machine rooms at the two top floors.

had trouble tying the old and new structures together. There were so many framing deviations in the old building he did not know how the two frames could be connected until he knocked out, floor by floor, part of the wall of the old building. Connections were made with adjustable clips of heavy welded angles. The new building has a welded steel framework with lightweight concrete deck cast on metal forms.

On the old building, there was a penthouse at the front of the 15th floor, apparently added after the building was completed. It was a combination of concrete bearing walls and steel framing. The contractor had two alternatives: tear the 15th floor and roof off and start with new steel framework, or reinforce the existing roof with the new steel framing. Because of the difficulty and cost of getting the rubbish down, he decided to reinforce the existing roof with a steel frame.

• **Old walls, new face**—All of the old building's masonry walls were left standing, except on the 15th floor.

On two sides of the building, a porcelain-enameled metal curtain wall was placed over the existing masonry face. This minimized demolition and improved the building's watertightness, since the area between the back of the curtain wall and the masonry is ventilated—open top and bottom.

A pressed-wood fiberboard backing was glued on the flat curtain-wall panels to insure flatness and prevent "oil-canning."

The remaining two exterior walls are buff brick.

• **High voltage**—The Practorian building is one of the first in Dallas to go on 277-volt lighting; light levels will be maintained at 40 to 50 foot-candles.

Approximately 150 2x4-ft fluorescent fixtures are used per floor; all are recessed. This was done to get the maximum ceiling height possible with only 10 ft 8 in. between floors. Ductwork of the air distribution system was arranged so fixtures could be recessed. New ceiling heights are generally 8 ft 6 in.

From the main utility transformer a 440-v service bus serves the power requirements for each floor. This brings in service to dry-type transformers on each floor that step down to 277-v for lighting and 100-v for outlets. A second 440-v riser goes to the penthouse.

The high-voltage system also will meet the heavy current demands of electronic office equipment and special installations.

All mechanical equipment is on the 16th and 17th floors of the addition. Electric motors are all 440-v.

Two air conditioning units—one 245-ton and one 328-ton—serve the building. There are three exterior temperature zones and one interior zone per floor. A high-pressure distribution system of round ducts feeds the conditioned air to mixing boxes for distribution.

For heating, two low-pressure boilers supply hot water to coils through which the air is fed.

Grayson-Gill, Inc., is the architect. Hunt and Joiner are the structural engineers. L. A. Pridham and W. E. Carner are project engineer and job superintendent, respectively, for Henry C. Beck Co., the builder.

Here's a new idea in trenching—and how one contractor who tried it—

cut equipment needs in half

Application of rubber-tired Tractor Shovels to work normally done by back-hoes, bulldozers and cranes has resulted in very substantial savings for Peter W. Kero Inc, Carlstadt, New Jersey.

Laying extensive sewer lines in Paramus, New Jersey, Kero's fleet of 12 Michigans is back-filling all 40 miles of main sewer line . . , digging the 4,000 (*yes, 4,000!*) connecting lines . . . and, as Project Supt Wayne Smith points out, "making enough free time for themselves to load trucks and handle a wide variety of utility jobs throughout the $2½ million project."

Michigans dig and quickly backfill trenches

The *biggest advantage* of the Michigans, however, according to both Supt Smith and Owner Peter Kero, is "their efficient handling of both excavation and backfilling on the connecting lines.

"*Each* of our six hoe-equipped Michigans," Mr. Kero says, "saves us the cost of the usual two-machine (back-hoe and dozer) operation." Typical per-Michigan production is *six* connecting lines excavated and laid per 8-hour day. Lines average 17 feet long, 6 to 12 feet deep. "The Michigans *could* dig more," says Owner Kero, "but some lines have been put through rock and hardpan . . . many others, dug in sand, have had to be shored . . . and every hole to date has had to be pumped out. Each Michigan also handles its own backfilling and wherever necessary, transports or truck-loads excess dirt." One of this hoe-equipped fleet is a 1¼ yd Model 75A; the other five, 1 yd Model 55A's.

Haul supplies, pull sheeting

The other six Michigans—three 1 yd Model 55A's and three 2¼ yd Model 175A's—backfill main lines (which are as much as 30 feet deep) . . . truck-load aggregates . . . and haul 6 to 30 inch pipe and other supplies around the job. Other times, using shop-made bucket-mounted bar-and-hook arrangements, the busy units pull sheeting from trenches. And still another Michigan job includes re-digging main-line trench routes for permanent paving. For this assignment, Kero has designed a special drop-blade for use with Michigan's bucket . . . one pass cuts trench to desired depth, width, and fills bucket for truck-loading.

Operators praise the maneuverability of all the Michigans. "They shift easily and steer fast," they say. "And they turn in a very short radius. This is especially important in busy residential areas where there's not too much room to move around."

No matter how much digging *you* have to do—or what it is, trenches, footings, basements—versatile, mobile Michigans probably can save you time and equipment investment, too. Nine basic models, 37 bucket choices (up to 12 cubic yards) are now available. See your Michigan Distributor for details.

Michigan is a registered trademark of

CLARK EQUIPMENT COMPANY

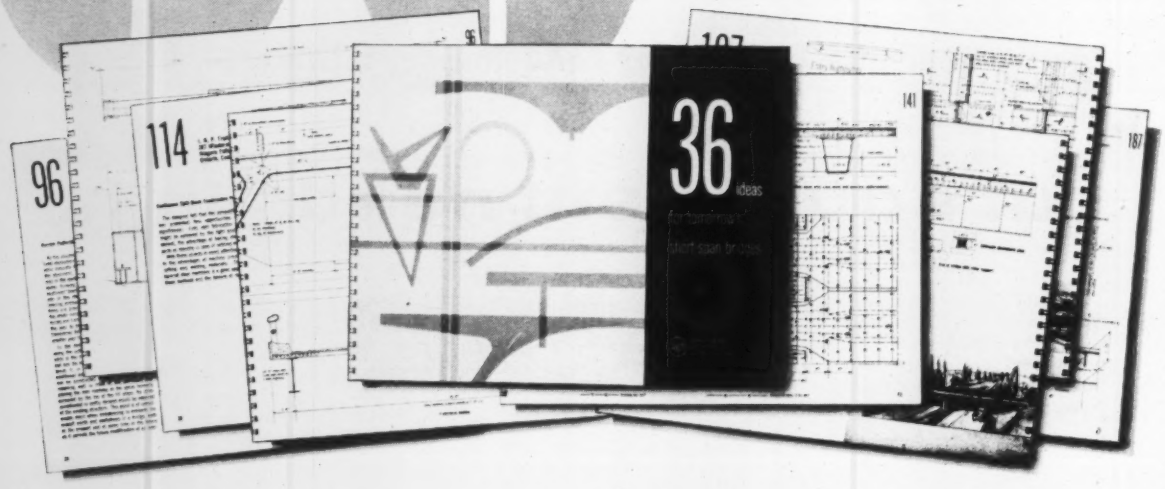
Construction Machinery Division

CLARK® EQUIPMENT

2401 Pipestone Road
Benton Harbor 39, Michigan

In Canada:
Canadian Clark, Ltd.
St. Thomas, Ontario

36 IDEAS FOR YOUR BRIDGE DESIGN FILE



Here's a quick way to see what's new in short-span bridge design the world over. While all 36 designs weren't winners in our recent bridge design competition, each contained ideas worthy of publication.

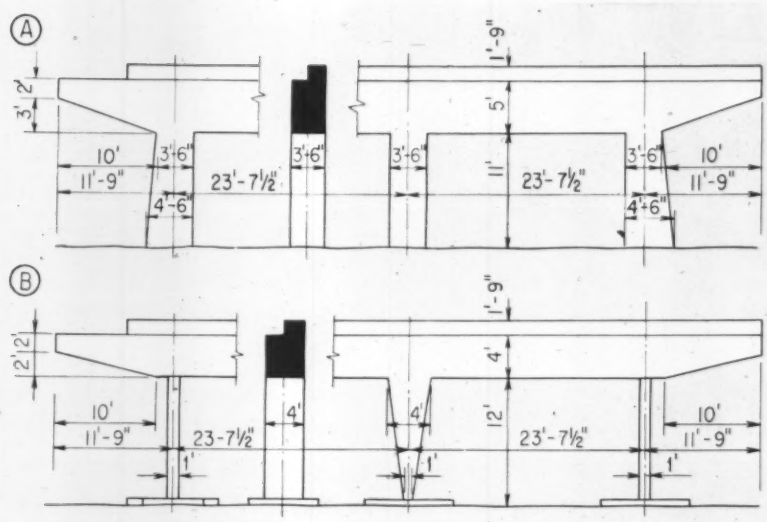
Submitted by professional and student engineers from 10 nations, all have one or more intriguing features that may save you time, materials and money; features that improve safety and appearance. Prestressed steel structures, composite beams, castellated beams, split beams, orthotropic decks, simplified auxiliaries, continuous girders, space frames, strut frames, hinged pier struts; these and other novel ideas are presented in detail.

Upon receipt of your request on your professional, company or school letterhead, a copy of our 80-page idea book (plus AISC's booklet, "15 ways to save money on short-span steel bridges") will be sent to you promptly.

If you work with short-span bridges in any capacity, you'll find these books valuable. *USS is a registered trademark*

This mark tells you a product is made of modern, dependable Steel.

American Bridge Division of United States Steel



Item:	Unit	Unit Cost	Design A		Design B	
			Quantity	Cost	Quantity	Cost
Excavation	Cu Yd	$5.00	688	$3,440	304	$1,520
Concrete - Class A	Cu Yd	60.00	268	16,080	228	13,680
Concrete - Class B	Cu Yd	50.00	283	14,150	128	6,400
Reinforcement	Lb	0.15	114,280	17,142	60,856	9,128
Cast-In-Place Piles	Ft	6.00	2,169	13,014	1,679	10,074
Total				$63,826		$40,802

Slenderizing Trims Pier Costs

By Heinz G. Juhl

Piers for multi-lane bridges offer great opportunities for economy, if the architect will cooperate with the structural engineer to design a slender, structurally efficient frame.

These piers are, in most cases, analyzed and designed as rigid frames supported and fully fixed at the top of the footings (Fig. A). Shortening of the frame girder by temperature drop and shrinkage will theoretically produce large thrusts and fixing moments in the stiff end columns at the outer footings.

Accurate analysis, taking into account the displacements of the outer footings, would reduce the loads on the footings, depending on pile arrangement, pile properties and soil resistance to pile and footing displacements. The load, however, would still be great; in many cases the combined loading, including temperature drop plus shrinkage, will be the governing design load, even with the permitted overstress.

This means that the pier must be designed for additional forces resulting from an uneconomical and structurally inefficient design.

In general, the structural engineer tries to eliminate forces and moments caused by temperature change and shrinkage by providing expansion joints or by making the structure statically determinate. (The latter has the disadvantage of decreasing ultimate strength.) Unfortunately, the architect, who is seldom concerned with the structural efficiency of the piers, often overrules the engineer. The architect, however, may accept an alternate design if the engineer can show cost savings.

The bent in Fig. B represents a pier designed for elimination of forces and moments produced by temperature and shrinkage. The end columns are slender in the transverse plane and flexible, but of sufficient depth in the longitudinal plane to resist longitudinal forces.

Cost savings ($23,000 per pier in the hypothetical case tabulated) can be considerable for bridges with a large number of piers.

H. G. Juhl is a bridge design engineer with the Pennsylvania Department of Highways.

"CONCRETOR"–LINDEN CLIMBING-CRANES BRING COSTS DOWN 6 WAYS!

B. A. W. Construction Co., Inc. uses "CONCRETOR"-LINDEN CLIMBING-CRANE to speed production, reduce costs on 13 story Buffalo, N. Y. apartment building.

1 Speeds production—"Concretor"-Linden Climbing-Crane goes up with the building while work is in progress... 2-3 floors at a time... the sky's the limit! Raises itself by new patented hydraulic climbing system, with push-button operation. No climbing ropes or pulley blocks.

2 Eliminates rehandling of materials over unnecessary ramps and runways. Unequalled where space is limited because "Concretor"-Linden Climbing-Cranes work from the top. No street access necessary.

3 Places loads where they're wanted! 100' jib rotates in full circle, up to 100' radius. Crane slews, hoists, luffs simultaneously.

4 Remote-controlled by 1 man from working deck. Noiseless—Electrical operation... eliminates hazards.

5 Pays for itself in 2 years with ordinary use. Eliminates costly diesel fuel. Almost maintenance-free. Costs about half what you'd expect to pay for earth-bound cranes of similar capacity.

6 Successfully used for demolition—stays on top. Set in a 4' 3" square well in the building—comes down with the job.

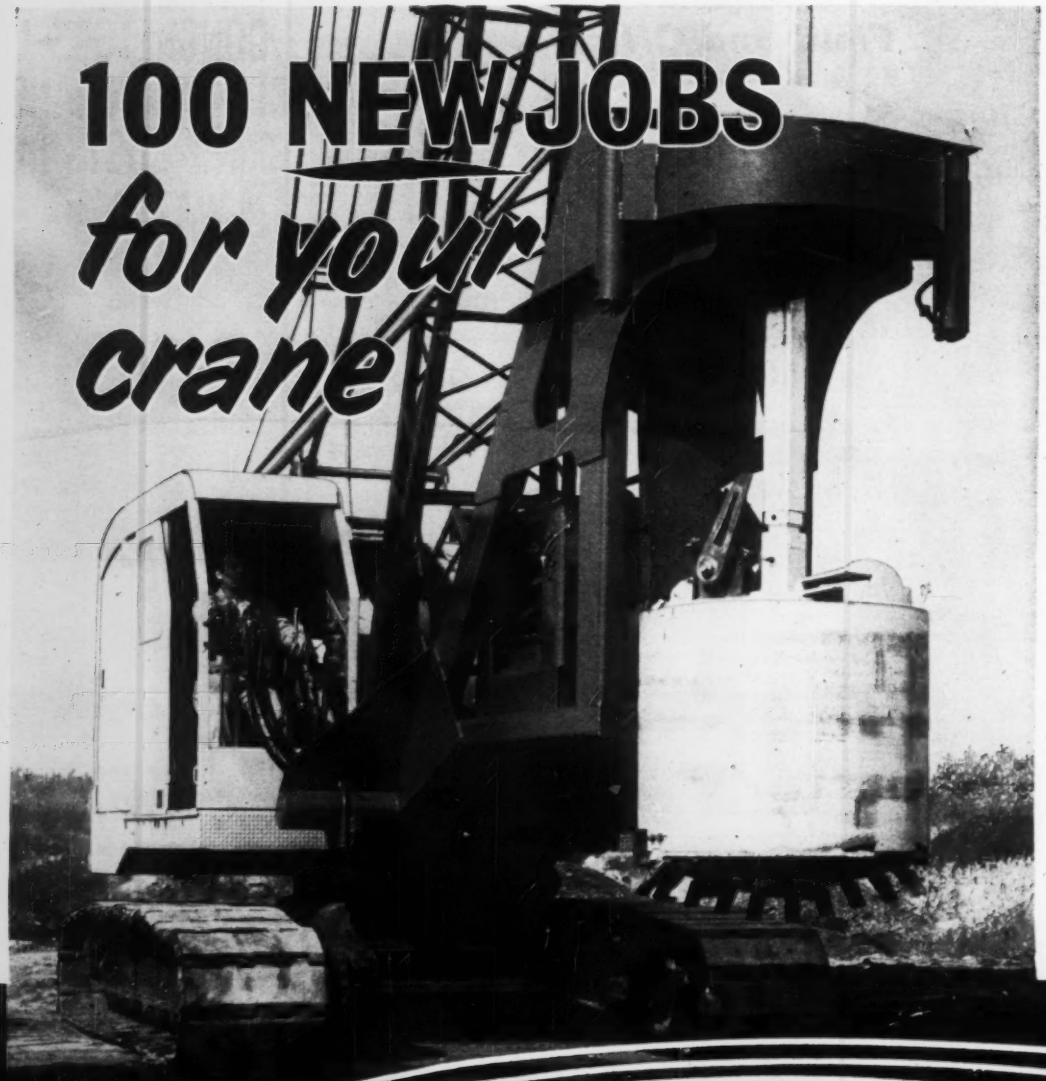
Recommended for all types of industrial, apartment and office buildings, silos, water towers, bridges, viaducts, etc.

RENTAL/PURCHASE PLANS. Delivered anywhere in U. S. Factory-trained service engineers available.

For literature address Dept. EN-9

B. M. HEEDE, INC.
30-01 37th Avenue, Long Island City 1, N. Y.
B. M. HEEDE CALIFORNIA, INC.
951 North Linden Ave., South San Francisco, Cal.

100 NEW JOBS *for your crane*



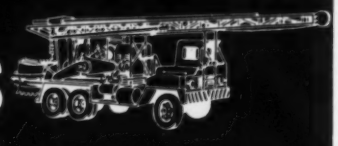
1′ to 16′ WIDE

200 ft. DEEP

Turn your crane's "spare time" into work time!

One crane, one operator, one Calweld Drill Attachment—that's all it takes to cash in on numerous earth-drilling jobs. Holes 1′ to 16′ in diameter and 200′ deep are "duck soup" for these big bore, bucket type drills. They dig straight, clean holes—drill up to 60′ per hour, remove up to 2½ yards per pass. Self-contained unit operates independently of crane power. Mounts in less than half an hour on any 1½-yard or larger crawler or truck-mounted crane. Models are also available for ¾ and 1-yard cranes.

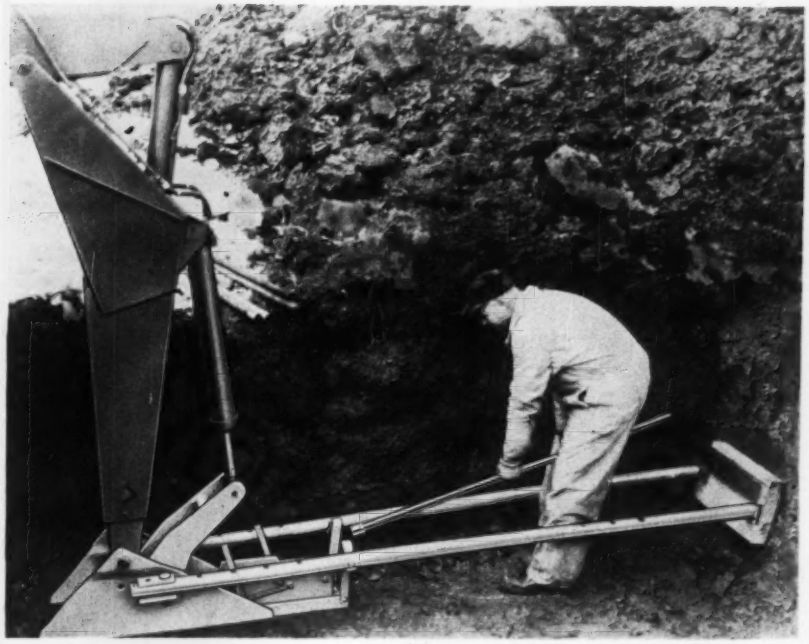
Write today for complete information.



CALWELD INCORPORATED

CALWELD DRILLS

CALWELD INC. • 7222 E. Slauson Avenue • Los Angeles 22, California



Pipe Puller Goes on Backhoe

A unit designed to push or pull ½-in. to 5½-in.-dia copper, steel and plastic pipe or tubing attaches to most standard tractor-mounted hydraulic backhoes.

One man can dig the trenches, attach and set up the unit, insert the rod sections and operate the tractor hydraulics, says the manufacturer.

The unit comes complete with a full set of cribbing, 50-ft push rod and pusher cap.

By changing the position of the two drag springs, direction can be reversed without turning the pusher around. The pusher has a 5-in. stroke and operates at a force of up to 35 tons. POW-R DEVICES, INC., CLARENCE CENTER ROAD, CLARENCE CENTER, N. Y.

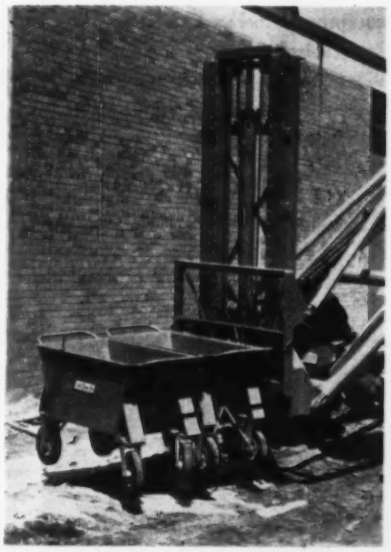
Hod Buggy Designed for Fork-lifts

Higher under-clearance for easier pick-up on fork-lifts, and a narrower tank that takes up less room on the scaffold are two features of the field tested Model 10-A mortar-handling buggy.

Because of the narrower width, one fork-lift can hoist two buggies at the same time.

The 7-cu ft hod buggie is deeper and longer, to reduce spillage. Other improvements include heavier bracing on nonpivotal wheels, and a double brake-lock made up of a kick lock on one pivotal wheel and a friction hand brake on both nonpivotal wheels, adding greater safety.

The buggies have anti-friction roller-bearing wheels and offer a choice of three types of tires. Over-all dimensions are 52½ x 23½ x 29½ in. high. LULL ENGINEERING CO., INC., 3045 HIGHWAY 13, ST. PAUL 11, MINN.



In the field of

HYDRAULIC DREDGING

GAHAGAN

a leading name for over 50 years

Gahagan Dredging Corporation,
90 Broad St., New York 6, N. Y.
Write, wire or phone Whitehall
3-2558. Cable 'Walgahagan".

GET MORE FOR YOUR MONEY
WITH A
WARREN-KNIGHT Transit

Model 2cF
$775.00

After all, an instrument with a design and construction that assures more work in less time, with reduced maintenance and repair costs, and will probably be considered your "Number one" instrument during your entire remaining Professional career, certainly merits your serious consideration.

10 DAY FREE TRIAL SHOWS WHY

Sturdier Construction, with extra reinforcing for rough handling, means longer life. Close Focus at 4½ feet saves many a set-up. Disappearing Stadia eliminates source of errors in running levels. Right Angle Peepsight through telescope axle permits offsets at close range. Differentiated Size and Slant of figures on limbs and vernier assures accurate reading. Replaceable Leveling Screws reduce maintenance. Non-cramping Leveling Head assures easy handling.

OUR 53rd YEAR

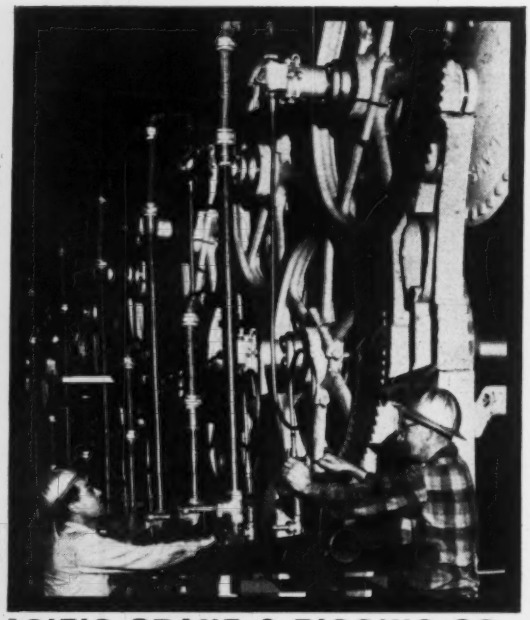
Ask for Bulletin NR-91 that lists full details.

WARREN-KNIGHT
136 N. 12th St., Phila. 7, Pa.

READY TO ROLL

Exacting assembly and alignment by the skilled personnel of Pacific Crane and Rigging Co. put this paper machine on the production line in minimum time.

Responsibility for precision installations of this type have been a P. C. & R. specialty for more than 25 years. For additional information on any of the services listed below, write to:



Pacific Crane & Rigging Co. — Mechanical Constructors

PACIFIC CRANE & RIGGING CO.

6855 E. Rosecrans Ave., Paramount, Calif., NEvada 6-9213

POLE RIGGING • MECHANICAL PIPING • CRANE SERVICE • EQUIPMENT SETTING • MISSILE EQUIPMENT • JACK & ROLLER RIGGING • SPECIAL PROJECTS

HIGH RECOVERY AT LOW COST WITH

ACKER DIAMOND BITS

Look for the Acker diamond seal — the sign of quality around the world.

Highest recovery at lowest cost is no idle boast. These Acker diamond bits are backed by forty years of experience in drilling equipment, tools and accessories. Top quality, selected stones, set by experienced hands assure you maximum cutting efficiency and endurance. Scrupulous inspections insure quality control! See for yourself how much you stand to gain when you standardize on Acker! Try an Acker diamond bit on *your* next job.

FREE ▶

Write today for Acker Bulletin 10. This colorful, completely illustrated catalog is yours for the asking!

ACKER DRILL CO., INC.
P. O. BOX 830 • SCRANTON 2, PA.

. . . New Products

Analyzer Keeps Track Of Chlorine in Water

Anachlor, an "amperometric type" analyzer, continuously measures and controls chlorine residuals in water supplies and sewage effluents. The analyzer is designed for use in water treatment plants, distribution systems, sewage treatment plants, swimming pools and for process water.

Water to be analyzed is treated with a reagent. The sample then passes measuring and reference electrodes which generate a current proportional to the chlorine content of the sample. This signal is measured, indicated and recorded by the potentiometer calibrated in ppm chlorine residual.

Continuous 1,200-rpm rotation of the measuring electrode reportedly cuts down maintenance and increases measuring efficiency. Fischer & Porter Co., 929 Jacksonville Rd., Warminster, Pa.

Switch Shuts Down Pump When Liquid Level Is Low

A water level safety switch prevents damage to pumps that depend on pumped liquid for lubrication and cooling. If there isn't enough liquid at the source or when the pump loses its prime, the safety switch measures discharge pressure and automatically shuts the system down.

The switch mounts on the pump discharge line. It is connected in series with the pump motor power supply. If after a predetermined period, pump discharge is not at a specified pressure level, a microswitch electrically disconnects the pump motor, stopping the system. United States Gauge Div., American Machine & Metals, Inc., Sellersville, Pa.

Horizontal Hole Driller Has 300-ft Penetration

Caldweld, Inc., has brought out a line of horizontal boring machines capable of drilling holes 6 in. to 60 in. dia to distances over 300 ft. Drilling speeds up to 2 ft per minute are claimed possible. The machine drives steel casings as it digs or it may be used without drill head to jack concrete pipe.

A 120-hp engine coupled to a four-speed transmission gives up to 19,000 ft-lb of torque at the drill head. As much as 300 tons of thrust can be brought to bear by the hydraulic rams. Loose material is carried back to the work pit by auger-type flight conveyors. Caldweld, Inc., 7222 E. Slauson Ave., Los Angeles, Calif.

Steel tunnel sections built in Maryland . . . floated 200 miles to Virginia

Steel supplied by Bethlehem: plates, structural shapes, bars, H-piles.

Eleven of these 33-ft-diameter tunnel sections, each measuring more than 300 ft long, and one measuring 115 ft long, were constructed at Port Deposit, Md., side-launched into the Susquehanna, and towed to the Elizabeth River in Virginia. Here they were sunk into position to form a two-lane vehicular tunnel connecting Norfolk with Portsmouth.

Each section contains nearly 600 tons of steel: 450 tons of plate for the inner and outer shells; 70 tons of shapes and angles, and 30 tons of flat bars for stiffeners; and 40 tons of concrete reinforcing bars, here being installed. Bethlehem supplied much of this steel.

Owner: Elizabeth River Tunnel District of Norfolk;

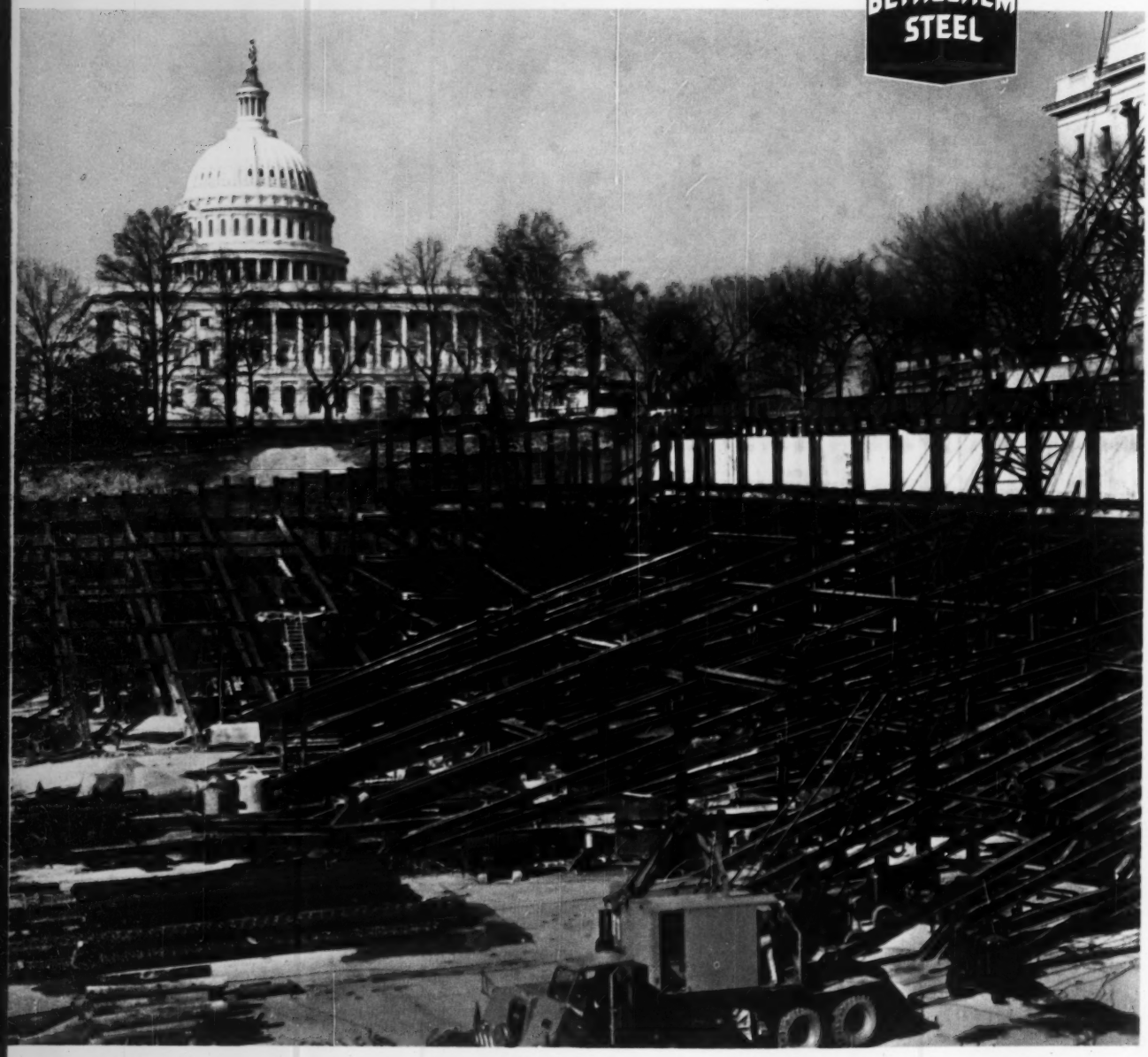
Designer and supervisor of construction: Parsons, Brinckerhoff, Quade and Douglas;

Prime contractor: Diamond Construction Co.;

Fabricator: Wiley Manufacturing Co., subsidiary of Republic Industrial Corp.

BETHLEHEM STEEL

BETHLEHEM STEEL



New offices for the House of Representatives

Builder: McCloskey & Co.;
Steel fabricator and erector: Bethlehem Steel.

Steel supplied by Bethlehem: H-piles, reinforcing bars, fabrication and erection of structural steel.

Excavation for the Additional House Office Building covers five city blocks. It provides for a basement, sub-basement, and three garages below ground level. A huge drainage system will contain the historic Tiber Creek that once ran through the Capitol grounds. Shown here is the Bethlehem steel piling erected as reinforcement for the excavation walls. Over 14,000 tons of Bethlehem steel reinforcing bars were used. Bethlehem also fabricated and erected 23,000 tons of structural steel for the office building which contains 33,600,000 cu ft of space as compared to 7,600,000 in the Capitol building.

Steel

for Strength . . . Economy . . . Versatility

Circular stadium takes shape in Washington

Steel supplied by Bethlehem: fabrication and erection of structural steel, reinforcing bars, pipe, sheets, fasteners, H-piles, Slabform (formed sheet).

A circular, double-decked stadium, new home of both the Senators and Redskins, will seat 45,000 fans during baseball season. Sections of the lower stands are movable, allowing for an increase to 50,000 fans for football. No supporting columns obstruct vision because seats and roof are supported by 66 huge steel cantilever arms, fabricated from Bethlehem steel plate. The frames are laterally connected by a combination of box struts and wide-flange rafters. Bethlehem also supplied over 5,000 tons of concrete reinforcing bars, 5,990 tons of H-piles and 245 tons of steel pipe to the project. A total of 7,350 tons of steelwork was erected by Bethlehem.

Owner: District of Columbia Armory Board;

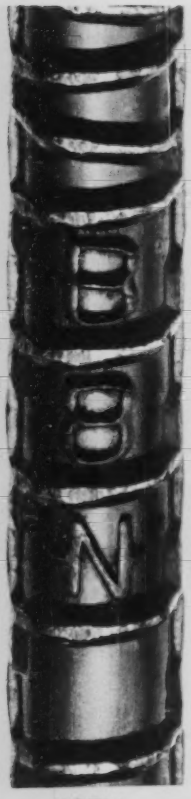
Architect and engineer: Dahl-Ewin-Osborn;

Builder: McCloskey & Co.

BETHLEHEM STEEL

It's easy to identify Bethlehem high-strength reinforcing bars—

in the field or in your shop



ASTM
A-15

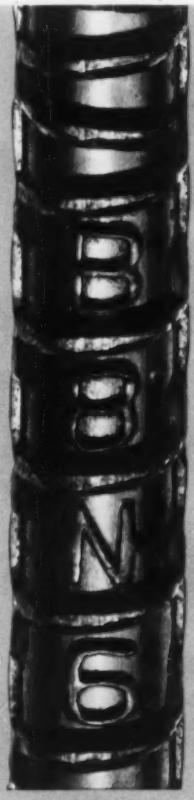
Bethlehem bars are always branded in the same sequence:

B means Bethlehem produced the bar

This number is the bar size (always between the letters)

-N- means the bar is made of domestic new-billet steel

This number designates the grade of high-strength steel (7 for 75,000 psi min. yield and 6 for 60,000 psi min. yield)



ASTM
A-432

ASTM
A-431

STEEL CONSTRUCTION IN MOTION PICTURES

These Bethlehem motion pictures are available free of charge. All are 16 mm, in color, with sound track. Just fill in the coupon and mail to us at Bethlehem, Pa.

OPEN ROAD (Highway construction). Color, 32 minutes.
SKYLINES (Structural steel). Color, 29 minutes.
STEEL IN CONCRETE (Reinforcing bars). Color, 38 minutes.
FURY OF THE WINDS (Fabricated steel and the Atlantic hurricane). Color, 24 minutes.
MEN, STEEL AND EARTHQUAKES (Fabricated steel). Color, 28 minutes.
STEEL SPANS THE CHESAPEAKE (Bridge building). Color, 37 minutes.

PUBLICATIONS DEPARTMENT
BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

I would like to arrange a showing of the following motion pictures:

Title — Date of showing

_____

_____

_____

Name_____

Address_____

_____

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
Export Sales: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

Men and Jobs

Retirements

Earle V. Miller has retired from the firm of Johannessen & Girand, Phoenix, Ariz., where for 40 years he was involved with construction of the state highway system.

Col. John T. O'Neill, Engineer, Fifth U. S. Army, Chicago, has retired after 30 years service with the Corps of Engineers. He will join the New York City Triborough Bridge and Tunnel Authority as a consultant. During World War II, Colonel O'Neill was active in bridge construction in France and Germany.

M. A. Durland has retired as dean of the Kansas State University School of Engineering and Architecture, a position he has held for 12 years. Active in professional and educational associations, he is past chairman of the Kansas-Nebraska Section, American Society for Engineering Education and a member of the national council of that organization.

Samuel M. Bailey, chief of the Louisville Division, Army Corps of Engineers since 1945, has retired after 30 years service with the federal government. He is a former president of the Kentucky Section, ASCE.

Robert B. Diemer has retired as general manager and chief engineer of the Metropolitan Water District of Los Angeles, a post he has held since 1952. Mr. Diemer has been with the district since it was organized in 1929 and is largely responsible for expanding the program for delivery of water to Southern California from the Colorado River.

Clinton L. Bogert has retired from Clinton Bogert Engineers of New York but will continue to act as consultant to the firm.

Frank Boyce, labor relations director for the Southern California chapter of Associated General Contractors, has retired after 20 years with the organization. A principal figure in labor negotiations during this period, he played an important part in development of the original master agreement for the industry in 1941.

R. J. Walter, Jr. retired from his position as a construction management engineer with the Bureau of Reclamation, Department of the Interior in Denver, after 26 years with the Bureau. While employed as construction engineer of the Cedar Bluff Dam in 1952, he received the Interior Department's Award for Distinguished Service for estimating the severity of an impending flood and warning the residents of Ellis and Hays, Kansas in time to prevent serious loss of life.

SELECT FLINTKOTE PRODUCTS FOR MAXIMUM RESULTS FROM PROTECTIVE COATINGS AND FLOOR SURFACINGS!

SEND FOR FLINTKOTE ENGINEERING DATA SHEETS TODAY!

FOR PROTECTING METAL, MASONRY AND INSULATION—

Many Flintkote asphalt cutbacks and emulsions are specially designed and field proven for protecting against water, dampness and corrosion, among them:

C-13-E EMULSION: non-fibrated asphalt base clay emulsion protects metal and masonry from weather and corrosive elements.

FLINTKOTE C-19: tough, spray-applied, vapor sealing asphalt cutback for low temperature equipment.

C-13-A EMULSION and THERMALKOTE®: heavily fibrated breathing types of coatings for moisture protection of insulation.

FOR INDUSTRIAL FLOORS—

FLINTMASTIC*: most widely used "work floor" wearing surface. A clay emulsion asphaltic binder for finishing or resurfacing wood or concrete in heavy duty wheel and foot traffic areas. Easy to apply, mixed on the job and trowel finished for quick, light surfacing.

FLINTKOTE LATEX FLOORING: attractive, thin-section topping of worn surfaces by trowel application.

LATEX CONCRETE PATCH: for fast, durable, area repairs. Resists many chemicals.

FLINTKOTE EPOXY FLOORING: toughest, highest grease and chemical resistance for surfacing problem floors. Units comprise resin binder, hardener, premixed filler, complete handling instructions.

*A TRADE MARK OF THE FLINTKOTE COMPANY

SEND COUPON OR WRITE TODAY!

Industrial Products Department,
The Flintkote Company,
30 Rockefeller Plaza, N.Y. 20, N.Y.

Name_____

Firm_____

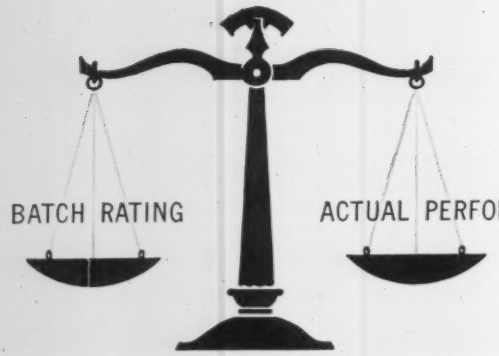
Address_____

City_____ Zone____ State_____

Coatings_____ Floorings_____

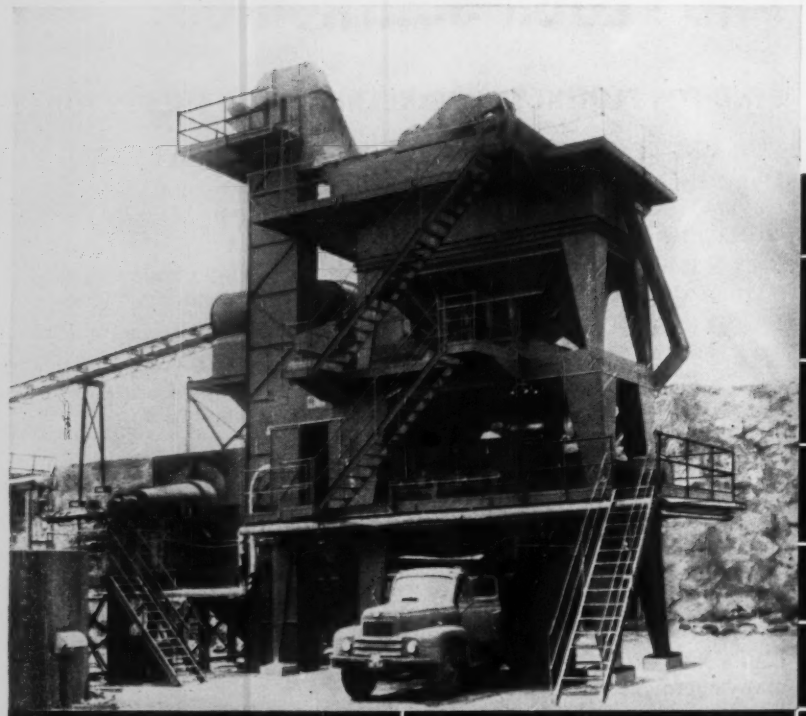
FLINTKOTE®

America's Broadest Line of Building Products



A BALANCED 8000 lb. Bituminous Batch Plant?

We think so, and invite you to check some of the features of our T-80 Plant



- 112" dia. x 40' long dryer with automatic 750 GPH low pressure oil burner
- 3½ deck or 4½ deck 5' x 16' gradation screen with vibration dampers and reversing switch on stop control
- 80 ton hot bin (120 tons optional), 4 or 5 compartment, as required
- 450 GPM jacketed A/C pump, with bypass, strainer, and relief valve assembly
- Positive fugitive dust control and hot bin ventilation with separate exhauster
- Jacketed twin shaft pugmill mixer, 83 cu. ft. vol. below center line of shafts
- 18" x 10" A/C buckets @ 12" centers on all steel chain
- Air compressor permanently mounted in mixing tower framing
- Stairways to all platforms and walkways on mixing tower
- Factory installed wiring, with control house built as an integral part of mixing tower structure
- Automatic weighing and remote control available, all plants

H & B offers plants BALANCED for 80 BATCH-PER-HOUR PRODUCTION, in sizes through 12,000 lb. batch rating

HETHERINGTON & BERNER INC.

Engineers Manufacturers

701 KENTUCKY AVE. INDIANAPOLIS 7, IND.

H&B

Subsidiary of AMERICAN HOIST

TOWER TYPE BATCH PLANTS in 8 sizes

MOBILE TYPE BATCH PLANTS in 6 sizes

BASE STABILIZER PLANTS in 2 sizes

MOTO-PAVER, the travelling combination Mixer and Paver (cold mix)

Airlift affects prices for . . .

Hawaiian Highway Contract

Materials for this $2 million grading, paving, drainage, and bridge job must be hauled 110 miles by air and water from Honolulu to Hanalei on the island of Kauai.

Territorial Contractors, Honolulu, took the award from the State Department of Transportation for $2,039,265, 5% below the second low, a joint venture of Morrison-Knudsen Co., Inc., and Hawaiian Dredging & Construction Co., Ltd., Honolulu, and 14% under the high of three bidders.

A corrugated, galvanized, asphalt coated, sheet metal pipe alternate was priced lower and chosen in place of a reinforced concrete culvert pipe alternate. All three bidders priced both alternates. Their range of prices for the two types of pipe looked like this:

Size	Unit	Quantity	CMP	RCP
24"	lf	68	$9.02–$11.00	$10.60–$17.00
30"	lf	312		14.84– 19.00
14 ga	lf	88	11.31– 13.00	
paved	lf	224	13.00– 16.00	
42"	lf	192	20.20– 23.00	23.41– 30.00
60"	lf	40	36.98– 50.00	46.00– 62.00

Concrete will have a cement content of 6.3 sacks per cubic yard, and a compressive strength of 3,000 psi.

Prevailing wage rates include: skilled labor, $3.65/hr; semi-skilled, $2.85; and common labor, $2.30.

The bidding included:

1C	Territorial Contr., Honolulu, Haw	$2,039,265
2	Morrison-Knudsen Co., Inc., & Hawaiian Dredging & Const. Co., Ltd., Honolulu, Haw	2,142,843
3	E. E. Black, Ltd., Honolulu, Haw	2,359,930

Bids: 5-11-61 Items	Unit	Quantity	Unit Prices 1C	2
Exc, roadway	cy	370,000	$1.46	$1.40
str, other than bri	cy	2,765	7.75	11.00
for bri	cy	55	28.00	31.00
ditch & channel	cy	3,350	4.45	5.00
Overhaul, sta yd	stay	200,000	0.04	0.03
mi yd	miy	43,000	0.25	0.30
Compacting, orig grnd	sy	1,700	0.20	0.15
Sprinkling	Mgal	670	5.00	5.00
Borrow, select, subbase crse	cy	23,400	7.05	7.00
Base, untreated	cy	6,800	7.75	8.00
Brooming off	sy	350	0.05	0.30
Asph emul, mix tp, prime ct.	gal	9,000	0.26	0.30
conc pvmt, mix #III	t	3,000	19.30	22.00
Conc, other than bri, cl A-1	cy	20	80.00	200.00
cl B-1	cy	75	80.50	150.00
in bri, incl railings, str #4	ls	job	12,000	15,000
in box culverts	ls	job	61,572	81,000
Steel, reinf, other than bri	lb	1,500	0.17	0.20
in bri, incl rail, str #4	ls	job	5,800	7,000
in box culvert	ls	job	15,370	17,000
Railing, aluminum	lf	1,593	6.30	7.00
conc	lf	1,613	9.85	10.00
RCP, culv, 24", cl III	lf	36	9.80	15.00
cl IV	lf	38	10.85	17.00
CMP, sheet, galv asph ctd, 12ga, 42"	lf	118	20.50	23.00
10ga, 60"	lf	128	36.70	50.00
Spillway, galv asph ctd,corrug, sheet met	lf	124	9.25	10.00
Masonry, cmt rubble	cy	355	43.00	52.00
Paving, grouted rubble	cy	110	50.00	52.00

Bids: 5-11-61 Items	Unit	Quantity	Unit Prices 1C	2
Monuments, centerline	ea	8	10.00	17.00
Gutter, conc, cip	lf	8,400	3.90	4.40
Guard rail, met, w/conc posts	lf	6,250	4.00	3.60
Leveling surfaces	ls	job	2,000	2,000
Signs, regulatory & warning	ea	14	45.00	53.00
Delineators, reflectorized	ea	21	12.00	18.00
Markers, federal aid	ea	2	60.00	52.00
PCP, asbestos, underdrain, 6"	lf	3,250	5.85	9.00
Alternate A				
Exc, str, Kalihiwai Bri	cy	2,800	14.00	25.00
Conc, bri, incl retaining wall	ls	job	520,000	498,000
Steel, reinf, bri incl rail & retaining walls	ls	job	160,000	184,000
Piles, conc, Kalihiwai Bri	lf	18,200	12.00	13.00
Filter mat, Kalihiwai Bri	cy	32	9.00	20.00
Bearing & expan plates, bronze & steel	ls	job	4,200	3,500
Alternate B*				
Exc, str, Kalihiwai Bri	cy	1,950	15.00	25.00
Conc, prestressed girders in bri	ls	job	277,000	308,000
Steel, reinf, bri incl rail & retaining walls	ls	job	89,000	100,000
Piles, conc, Kalihiwai Bri	lf	17,300	12.00	13.00
Filter mat, Kalihiwai Bri	cy	25	9.00	20.00
Bearing, steel expan & fixed in bri incl retaining walls excl prestressed members	ls	job	20,000	35,000
Alternate I				
RCP, culv, cl IV, 24"	lf	68	10.60	17.00
30"	lf	312	15.00	19.00
36"	lf	200	17.20	24.00
42"	lf	192	23.64	30.00
60"	lf	40	51.00	62.00
Alternate II*				
CMP, sheet, galv asph ctd, 14 ga, 24"	lf	68	9.35	11.00
30"	lf	88	12.00	13.00
paved, 30"	lf	224	13.00	16.00
12 ga, 36"	lf	200	17.00	19.00
42"	lf	192	20.50	23.00
10 ga, 60"	lf	40	40.00	50.00

* Contract award

Starting date: 8/61
Completion time: 320 working days

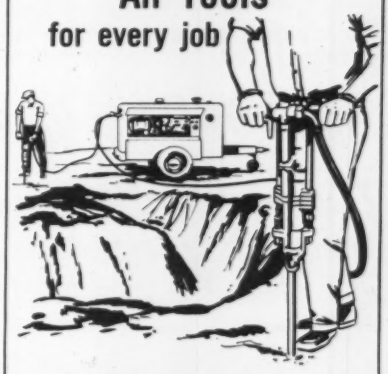
Low Pipe Prices Help Take Alaskan Sewer Contract

A joint venture of Reed & Martin Inc. and Burgess Construction Co., Fairbanks, Alas., took this 16,000-ft sanitary sewer contract for $575,261 by underbidding two competitors on 4, 6, 8, 10, and 12 in. waste soil pipe, and 12 in. river crossing. The low was really low, 21% under Pacific Construction Co., Fairbanks, second low, 35% under the high of three bidders, and 9% below estimate. C. Harold Gillam is the city engineer for the town of Fairbanks.

Reed-Martin & Burgess' bid of $4 a unit for 5,706 ft of 4 in. waste soil pipe was $1 under the second low and $2.27 under the high. For 8 in., their bid of $6 for 11,450 ft was $1 under the second low and $1.22 under the third, and for 10 in. the low of $7 for 2,000 ft. was $2 under the second low

(Please turn the page)

DAVEY
Air Tools
for every job



Paving Breakers, Clay Spades, Backfill Tampers, Rock Drills, Trench Diggers . . . light, medium and heavy-duty types. There's an efficient Davey-Holman tool to meet your every need on every job. Write today for Bulletin T.

▲-4031A

DAVEY COMPRESSOR CO.
Kent, Ohio
DAVEY
distributors everywhere

POSEY

TUNNEL FORMS

Adjustable box forms, non-telescoping round forms for sewerage, water, storm sewers or vehicular tunnels.

For FREE illustrated catalog showing job application, write:

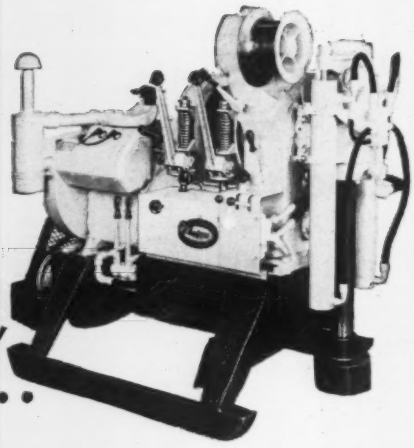
POSEY IRON WORKS INC.
Custom Fabrication For Over 50 Years

DIVISIONS:
• Iroquois Asphalt Plants • Mixers and Blenders
• Tunnel Forms • Industrial Heating • Foundry
• Large OD Steel pipe

561 S. PRINCE STREET LANCASTER, PA.

IT'S A FACT

NEW Longyear "38" Drill works anywhere, goes anywhere...



ALL THE FEATURES drillers have asked for are combined in the new Longyear "38" Diamond Drill. Finger-tip controls and a wide range of optional equipment put the operator in complete command. Ideal for all kinds of mineral exploration jobs, blast hole drilling and site development work. The versatile "38" has new low-range speeds, optional built-in Wire Line Hoist and hydraulic retraction. Features compact design with lightweight chassis breakdown for easier transporting. Capacity, 2800 ft. with AW rods. For information, contact our nearest office.

Longyear

E. J. LONGYEAR COMPANY
MINNEAPOLIS, MINNESOTA, U.S.A.

LONGYEAR N. V. The Hague, Holland
CANADIAN LONGYEAR LTD. North Bay, Ontario, Canada.
LONGYEAR ET CIE Paris, France
LONGYEAR DE MEXICO S.A. de C.V. San Bartolo, Mexico
CHRISTENSEN LONGYEAR (INDIA) LTD. Bombay, India
NIPPON LONGYEAR COMPANY LTD. Tokyo, Japan

foundations
underpinning
piling
shoring
cofferdams
"Colcrete" process

Spencer, White & Prentis INC.
catalog on request

10 E. 40th St., New York 16 MU 9-1530
Detroit: 2033 Park Ave. Chicago: 221 North LaSalle St. Washington, D. C.: Tower Bldg.

ELGOOD
Hydraulic & Mechanical
JACKS
Capacities to 600 Tons—48" Travel

Jacking Equipment for
Pipe Pushing
Erection
Pile Driving
Pile Testing
Slip Forms
Tunnel Shields
Prestressed Concrete
many other applications

RENTALS — SALES — DESIGN
Large Stock
Immediate Delivery
Write for Job Fact Sheets

ELGOOD EQUIPMENT CORP.
242 Randolph St., Brooklyn 37, N. Y.
HY 7-5445

PHOENIX BRIDGE COMPANY
Engineers—Fabricators
Erectors
Structural Steel
BRIDGES and BUILDINGS
General Office and Shops
PHOENIXVILLE, PA.
Subsidiary—Phoenix Steel Corporation

and $1.37 under the third. Similiarly, with a bid of $8 for 3,594 ft of 12 in waste soil pipe (except river crossing), the low was $1.75 to $3 under the other bids, and for 317 ea of 12 in river crossing, their bid of $177 a unit was $265 to $359 low.

Both wood stave and concrete block manhole alternates were also priced by the three bidders, with cheaper wood stave taking the award at $900 ea for 60 manholes and $1,100 ea for 5 drop manholes. Reed-Martin & Burgess were $200 to $450 below the other bidders for manholes and $100 to $265 low for drop manholes.

The job includes a sanitary sewer and trunk system for collection and transmission to a proposed treatment plant.

The contractor may encounter some difficulties with permafrost and narrow streets requiring removal of spoil from the work area. Work on the river crossing will probably be done from the surface of the ice during early spring, '62.

Both rail and highway transportation are available to the contractor, and the construction site is only half a mile away from the railhead. All of the materials for the job will be furnished by the contractor.

Wage rates include: skilled labor, $5.55 /hr; semi-skilled, $5.15; and common $4.75.

The bidding included:

1C	Reed & Martin, Inc., and Burgess Const. Co., Inc., Fairbanks, Alas	$575,261
2	Pacific Const. Co., Fairbanks, Alas	729,294
3	Don Early, Inc., Fairbanks, Alas	884,780
EE	C. Harold Gillam, City Engineer, Fairbanks	632,000

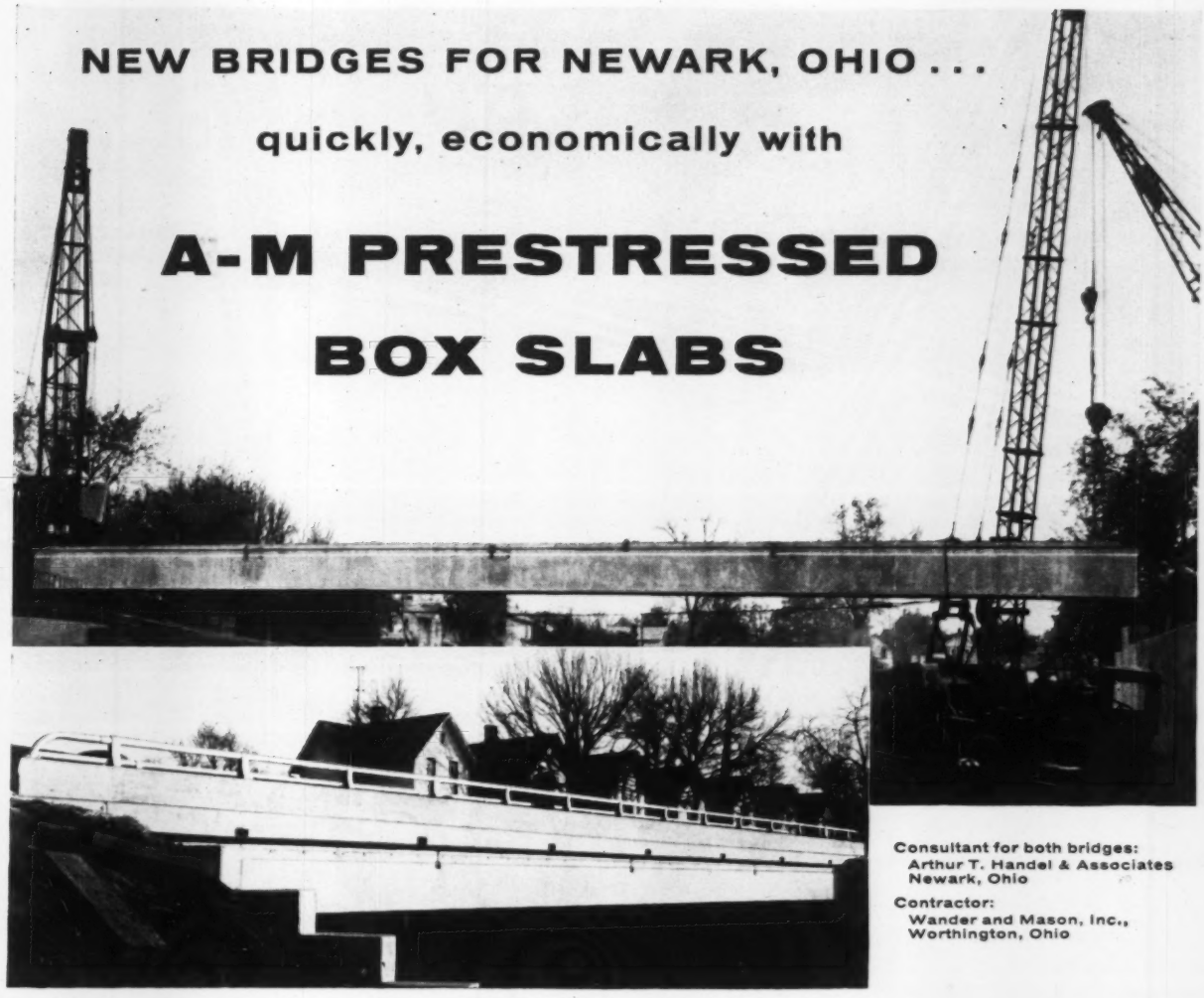
Bids: 6-19-61 Items	Unit	Quantity	Unit Prices 1C	2
Excavation, trench	cy	15,877	$9.00	$8.00
extra	cy	680	10.00	6.00
frozen soil for estimated 391 service lines	cy	531	8.00	7.00
Sheeting, lip	bf	2,434	10.00	8.00
Asph pvmt, replace	sy	6,375	0.04	0.02
Pipe, waste soil, 8"	lf	1,566	20.00	20.00
10"	lf	11,450	6.00	7.00
for service lines, 4"	lf	2,003	7.00	9.00
6"	lf	5,706	4.00	5.00
encased in conc or CI, 8"	lf	36	5.00	8.00
12"	lf	20	15.00	12.00
except river crossing	lf	175	16.00	15.00
Manhole, wood stave	ea	3,594	8.00	11.00
drop	ea	60	900.00	1,100
conc block	ea	5	1,100	1,200
drop	ea	60	1,200	1,000
Flushing well, waste service, single	ea	5	1,400	1,100
perm top	ea	13	150.00	150.00
double	ea	3	200.00	200.00
perm top	ea	41	250.00	300.00
Connection, house line, waste service, 4"	ea	8	400.00	380.00
6"	ea	43	140.00	230.00
8"	ea	7	180.00	250.00
Saddle & riser, 4"	ea	2	250.00	300.00
6"	ea	317	60.00	100.00
Plugs	ea	2	120.00	120.00
Lift sta #1, packaged, pumping 700 gpm, w/wet well	ea	59	7.00	5.00
#2, packaged, ejector 150 gpm	ea	1	40,301	60,000
River crossing, 12"	ea	1	28,465	40,000
	ea	317	177.00	441.64

Completion time: 420 calendar days
Liquidated damages: $50 per calendar day

NEW BRIDGES FOR NEWARK, OHIO . . .

quickly, economically with

A-M PRESTRESSED BOX SLABS



Consultant for both bridges:
Arthur T. Handel & Associates
Newark, Ohio

Contractor:
Wander and Mason, Inc.,
Worthington, Ohio

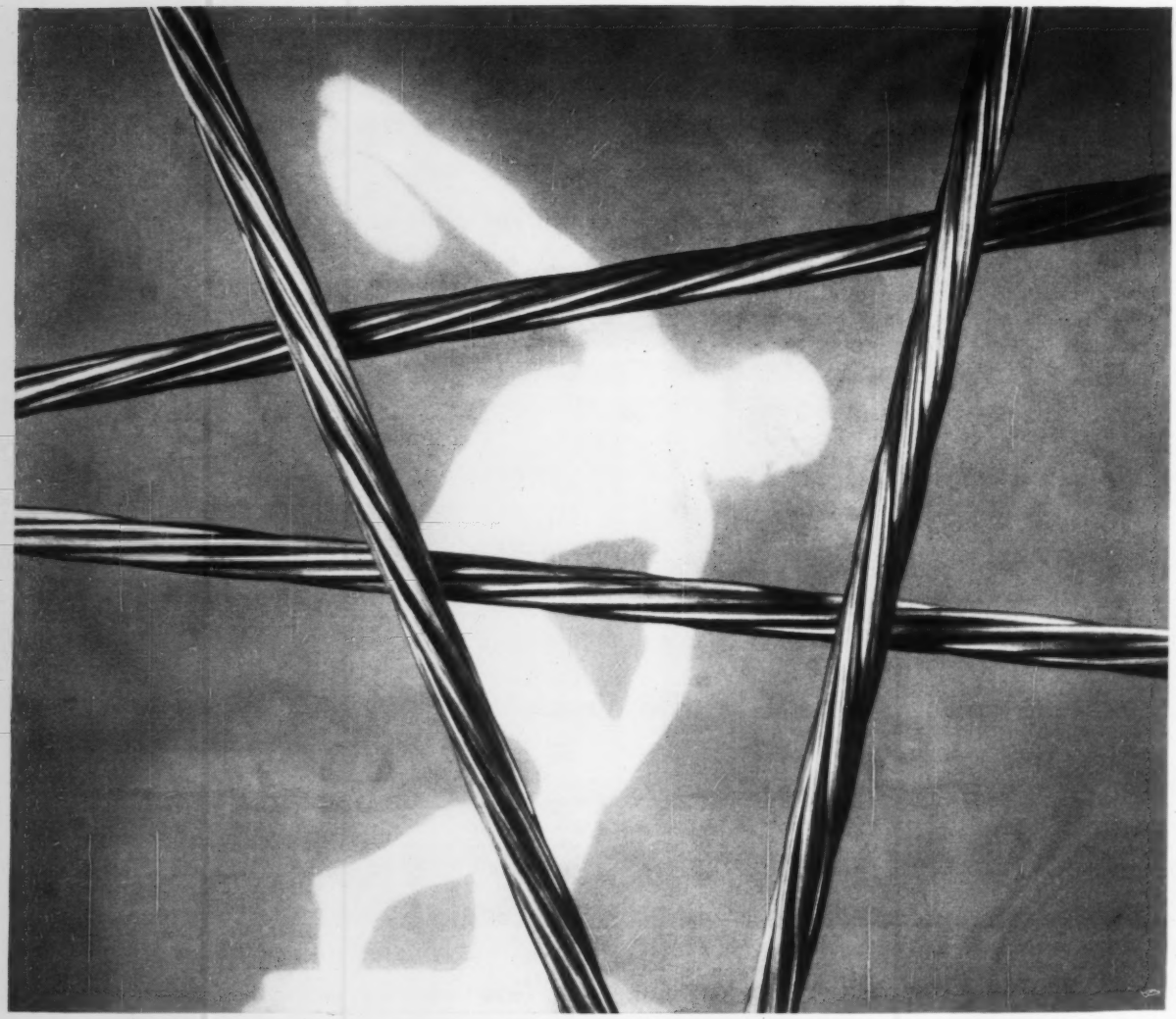
The 106′ composite box slab being positioned, above, is the first of 16 precast concrete units in the new Eleventh Street Bridge erected for Newark. Each deck member is 48″ deep by 48″ wide, weighs 54 tons, and was pretensioned with straight strand using a bond retardant.

The completed, 112′ Wilson Street Bridge—also erected for Newark—is composed of ten 48″ square composite box slabs. This bridge was constructed in only two days despite extreme weather conditions and a heavy snow.

The prestressed concrete slabs were shipped from American-Marrietta's Columbus, Ohio plant to Newark by rail, transferred to trucks and trailers with two 25-ton hydraulic jacks, and hauled three miles from siding to job site.

Both installations replace steel truss bridges and were constructed in record time with considerable savings of labor and expense.

AMERICAN-MARIETTA COMPANY
CONCRETE PRODUCTS DIVISION
GENERAL OFFICES:
AMERICAN-MARIETTA BUILDING
101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS, PHONE: WHITEHALL 4-5600



We supply the "muscle" for modern concrete

Lasting strength and flexibility—they're as important in prestressed concrete strand as they are in muscle. And these are the qualities that have made CF&I Prestressed Concrete Strand and Wire strong favorites with concrete men across the nation.

CF&I Prestressed Concrete Strand is ideal for stressing all types of structural members because it has uniform elastic properties and high tensile strength. Made in accordance with ASTM A-416.

For post-tensioning, you'll want CF&I Stress-Relieved Prestressed Concrete Wire. In addition to excellent mechanical properties, CF&I Wires lie flat and straight when uncoiled. This makes them ideal for either Button Anchorage (BA) or Wedge Anchorage (WA) types. Made in accordance with ASTM A-421.

CF&I's nationwide system of warehouses and sales offices assures you speedy delivery on these and other top-quality products for the construction industry. Ask your nearby CF&I sales office for complete details.

The Colorado Fuel and Iron Corporation

Denver • Oakland • New York
Sales Offices in Key Cities

Other CF&I Products for the Prestressed and Precast Concrete Industry

CF&I Welded Wire Fabric ASTM A-185 • CF&I Concrete Reinforcing Bars and Rods ASTM A-15 • CF&I Wire for Concrete Reinforcement ASTM A-82 • CF&I Hard Drawn Prestressed Concrete Wire ASTM A-227 • CF&I Hard Drawn Prestressed Concrete Wire for Redrawing • Cal-Tie Wire • Wickwire Rope and Slings.

8135-B

Materials Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR Issues for OTHER PRICES:

- Iron & Steel Products, Pipe: Last, Aug. 17. Next, Sep. 14.
- Wood Products, Glass, Explosives, Chemicals: Last, Aug. 24; Next, Sep. 21.
- Clay Products, Limes, Plaster, Paint, Roofing: Last, Aug. 31, Next, Sep. 28.
- Wage Rates, Building Board, Lath, Insulation: Last Aug. 31; Next, Sep. 28.

CEMENT, AGGREGATE, READY MIXED CONCRETE - F. O. B. CITY

Item	Quantity	Unit	Atlanta	Baltimore	Birmingham	Boston	Chicago	Cincinnati	Cleveland	Dallas	Denver	Detroit	Kansas City	Los Angeles	Minneapolis	New Orleans	New York	Philadelphia	Pittsburgh	St. Louis	San Francisco	Seattle	Montreal	†Toronto
Cement, Port., bulk	CL	bbl	$3.69a	$3.91a	$3.50cf	$4.53ap	$4.02ag	$4.34c	$3.89	$3.46a	$4.39a	$3.91agq	$3.97a	$3.71c	$4.17a	$3.65b	$4.20a	$4.01#ae	$4.62bj	$4.09a	$3.85c	$3.75ag	$2.96de#	$3.84t
paper	"	"	4.32a#	4.42a	4.43c	5.83ip	4.52ag	4.90c	4.77#	3.90a	4.89a	4.24a	4.52a	4.15c	4.68a	4.17b	4.71a	4.51#ae	5.65bjk	4.59a	4.42c	4.47#a	3.26#de	4.00i
mortar	"	"	3.64a#	3.56a		4.90mp	4.15g	4.32c	4.19#ae	3.78a	4.89	3.29a	4.30a	4.65c	4.26a	3.97b	3.77a	3.63#e	5.00bjl	4.29a	4.86c	4.65a	3.31#de	4.00i
Gravel, 1½"	"	ton	2.25a#	2.80a#	2.53ns	3.00qsz	3.78#e	2.29#eu	2.25ae	2.55#a	1.95	2.50#abm		2.56#at	2.70#ae	2.61b		1.95#a	2.68#aqv	3.50#as	2.02	4.25#bm	1.90#a	2.40
¾"	"	"	2.50a#	2.80a#	2.53ns	3.00qsz	3.78#be	2.34#eu	2.25ae	2.60#a	2.15#	2.50#abm		2.76#at	2.70#ae	2.61b	3.20bk	1.95#a	2.68#aqv	3.50#as	2.02	4.25#bm	2.15#a	2.40
Sand	"	"	2.00a#	2.25a#	2.13ns	3.00qsz	4.13#be	2.44#eu	1.75ae	1.65#	1.42#b	2.16#abm	1.70#a	2.41#at	1.60#ae	2.16#b	2.30bkw	1.55#a	3.08#aqv	2.50 3.50#as	2.12	4.25#bm	2.40#a	2.05
Crushed stone, 1½"	"	"	3.10s	2.85a#	2.75s	1.75qsz	3.95#be	2.55#eu	2.70fy	2.57		2.80#abm	2.10#a	2.41#at	4.00#ae		2.85blbb	2.00#a	2.00#aqv	1.75js	2.17	4.50#bm	1.90#	2.40
¾"	"	"	3.10s	2.90a#	2.75s	1.85qsz	3.95#be	2.74#eu	2.70fy	2.77	3.00#x	2.80#abm	2.10#a	2.46#at	4.00#ae		2.85blbb	2.30#a	2.00#aqv	1.75js	2.17	4.50#bm	2.15#	2.40
Crushed slag,* 1½"	"	"	3.90r	2.05a#	1.95d		2.25#e	1.80u	2.30#f			3.15aqaa				1.95d		2.25#a	2.10w	1.80			2.00	2.40
¾"	"	"	3.90r	2.00a#	2.05d		2.25#e	1.80u	2.30#f			3.50aqaa				2.05d		2.35#a	2.10w	1.85			2.00	2.40
Concrete block, 8"x8"x16"																								
Sand gravel	TL	ea	0.19o	0.18a	0.19	0.24o	0.26#e	0.19o			0.25	0.24u	0.22a	0.175f	0.20q	0.25r	0.276no		0.22rx	0.26#o	0.24	0.288s	0.20	0.26
Lt. wgt. agg	"	"	0.225o	0.18a	0.19	0.305ao	0.26#be	0.25ao	0.24f	0.255	0.27ao	.27#au	0.27c	0.25		0.25	0.32bo	0.20	0.22rx	0.32#eo	0.28cl	0.384es	0.28t	0.30cu
Concrete, ready-mix'r		cy	13.00g	13.50ou	14.75q	15.00q	13.00-13.50e	15.00gr	16.95u	11.50x	11.90	15.50eaa	13.50	12.46hlx	14.55f	14.25o	17.60ay	14.65z	16.15o	13.65/14.10q	13.25cw	14.70j	10.80ek	11.75q

Delivered. * F.o.b. plant. ** Add 4% sales tax ## Add 2% Intrastate sales tax. R Revised. † Plus 6% Mun & Prov tax.

CEMENT: •a Less 10¢ disc. 15 days. •b Less 2½ disc. 15 days. •c Less 10¢ disc. 10 days. •d 10¢ disc. 20 days. •e Truckload lots. •f Fob mill, add $14.58 to $21.31 per car switching charges. •g fob mill + freight. •h LCL. •i Less 2% disc. 10 days. •j Truck lots, fob yard. •k 100 bag lots. •l over 150 sacks. •m Sold in bags only. •n Less 5% disc. 30 days. •o Plus 50¢ for Sat. del. •p 5-8 ton truckload. •q F.o.b. mill •r 50 cy & over •s In bags & bbl. Only. •t min. 7 tons

SAND, GRAVEL, STONE & SLAG: •a Truck lots. •b Per cu. yd. •c 5 tons up. •d Less 5¢ disc. 10 days. •e Less 2% disc. 10th. •f Less 2% disc. 15th. •g Less 5% for cash. •h Less than 5 tons. •j F.o.b. quarry. •k Barge lots asd. •l F.o.b. scow Hudson river. •m Less 2% for cash. •n F.o.b. cars. •o F.o.b. yard. •r less 5% disc. 15th. •s Less 2% disc. 10 days. •t Less 10¢ disc. 10 days. •u Less 5¢ disc. 10 days. •v Less 2% disc. 15 days. •w Less 10¢ disc. 15 days. •x Incl. 35¢ switch charge. •y F.o.b. dock. •z 5-8 tons. •aa Less 5% disc. 15 days. •bb Less 2% 25th of month

CONCRETE BLOCK: •a Cinder •b Waylite. •c Haydite. •d Celocrete. •e 5¼ x 8 x 12 in. •f 8 x 4 x 16 •g F.o.b. truck at job. •l F.o.b. plant San Rafael. •m F.o.b. yard. •n 8 x 8 x 18. •o Less 2% disc. 10 days. •p Less 2% disc. 10th, •q Less 5% disc. 10th. •r Less 2% disc. 15 days. •s Less 2% disc. cash. •t Siporex, 7 x 8 x 18. •u Less 5% disc. 10 days. •v Less 12% disc. 15th.

READY MIXED CONCRETE: •a 6 cu yd or over del. Man. •b 25 cu yds or more. •c 10-100 cy. •d 1-3 mi. zone add 15¢ for ea. add'l 1-mi. zone. •e 3,000 lb comp. •f 2,500 lb. comp., less 5% disc. 30 days. •j Less 25¢ disc. 15 days. •h Less 50¢ for cash. •i 5% off for cash. •j 2% off for cash. •k Federal tax included. Add 6% mun. & prov. tax. •l 1:2½:3½ base price. •m F.o.b. yard. •n Plus escalator clause. •o Less 2% disc. 15 days. •p Less 50¢ disc. 15 days. •q Less 2% disc. 10 days. Add 50¢ per zone. •r 2000 wgt. •s Less 5% disc. 10 days. •t Incl. 50¢ heating. •u Less 2% disc. 15th. •v Sat. del. +50¢. •w 10-100 cy. •x Del in zone 20-B. •y less 25¢, 10 days. •z less 1% in 30 days. •aa 6 bag mix

MILL PRICES FOR BULK CEMENT: Subject to 10¢ discount, 15 days. For paper bags add 50¢ per bbl., not refundable. *Prices guaranteed through December 31, 1961*

Richard City, Tenn	$3.55	Bath, Pa	$3.50	Northampton, Pa	$3.50	Leeds, Ala	$3.40	Howes Cave, N. Y.	$3.50	Oswego, N. Y.	$3.60	Green Bay, Wis	$3.60
Clinchfield, Ga	3.55	Lesley, Pa	3.50	Universal, Pa	3.60	Duluth, Minn	3.60	Muskegon, Mich	3.55	Cleveland, O	3.65	Ironton, O	3.65
Kingsport, Tenn	3.55	Buffington, Ind	3.55	Waco, Tex. (+ 10 tax).	3.35	Hudson, N. Y.	3.50	Saginaw, Mich	3.60	Alsen, N. Y.	3.50	Montreal, Canada (a)	2.80
West Des Moines, Iowa	3.65	ndependence, Kan	3.35	Giant, S. C.	3.55	Alpena, Mich	3.50	Wyandotte, Mich	3.60	Toledo, O	3.60	W. Winfield, Pa	3.60
Nazareth, Pa	3.50	Hannibal, Mo	3.55	Steelton, Minn	3.60	Detroit, Mich	3.60	Buffalo, N. Y.	3.55	Milwaukee, Wis	3.60	Security, Md.	3.50

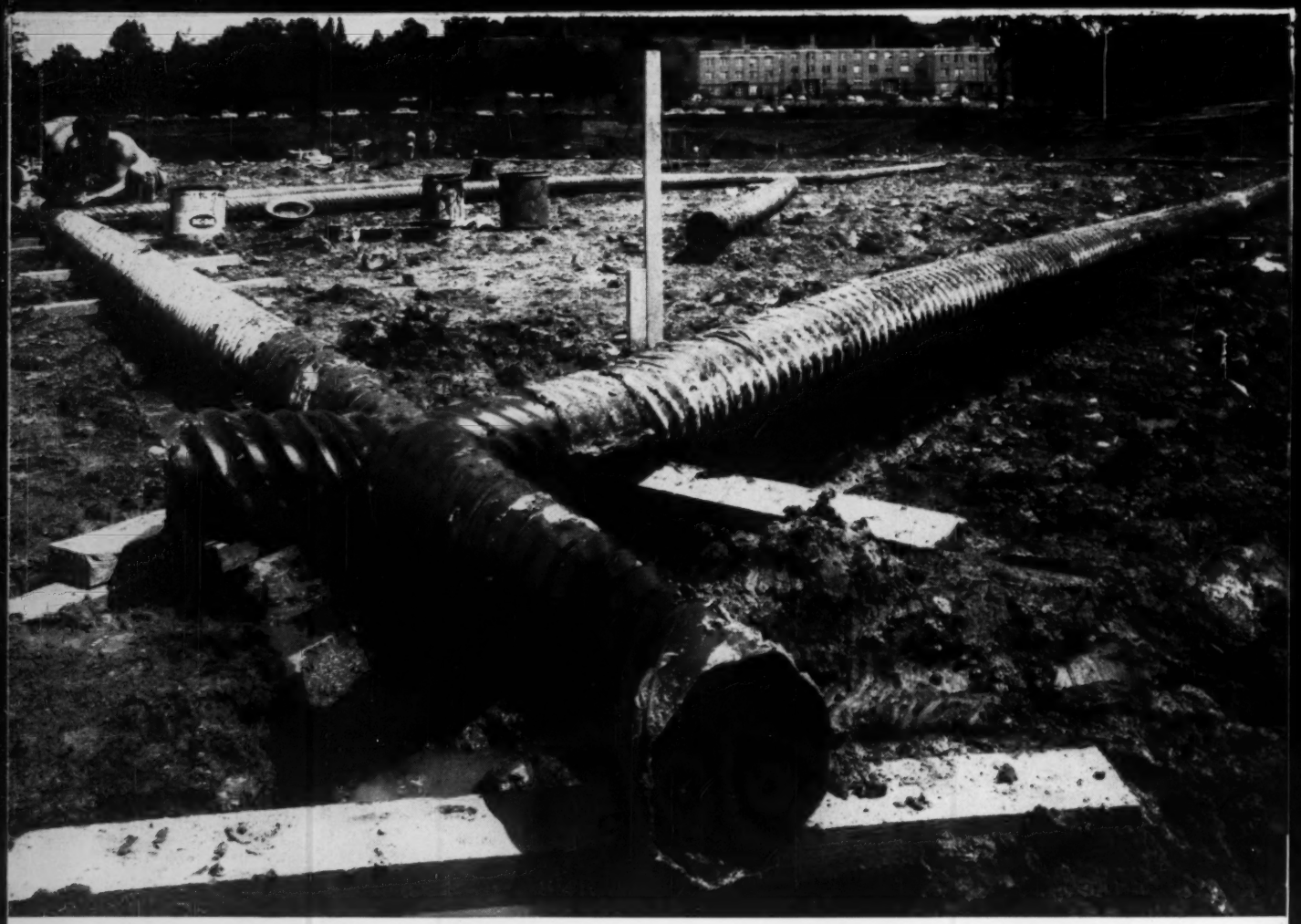
•a 350 lb. bbl.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS - F. O. B. CITY

Item	Quantity	Unit	Atlanta	Baltimore	Birmingham	Boston	Chicago	Cincinnati	Cleveland	Dallas	Denver	Detroit	Kansas City	Los Angeles	Minneapolis	New Orleans	New York	Philadelphia	Pittsburgh	St. Louis	San Francisco	Seattle	Montreal	Toronto
Paving brick, block-																								
Brick, 3"x4"x8½"	CL	M	e	e	e	e	$150.00#ab	e	e	e	e	e	e	e	e	e		e	e	$60.00k	e	e	e	e
Granite, 4"x4"x8"	q	M	e	e	$66.00i	e	95.00#a	e	89.50	40/80	62.00a	$114.00	e	e	e	e		e	e	95.00n	e	$70.00	e	$120.00f#
Wood, 3½" 16 lb		sy	e	e	e	e	3.95/4.00aj	e	6.30	e	e	e	e	e	e	e	$3.70f	e	e	6.35n	e	e	e	4.50f
Asphalt, paving																								
Tank car	CL	ton	$0.1182W	$21.00	25.12 O	$22.00apS	22.00b	$24.00SU	26.00tA	26.90		31.00f	$18.75cl	$18.00dmx	23.70	$20.00e	22.90mO	0.21u	31.20isv	$19.74	22.50gdd	$24.00z	$30.50n	38.90
Drummed	CL	gal	0.1220W		25.69	46.00apS	32.00b			46.35							67.83mO			21.65	41.00gdd	47.00h	43.60n	59.01ee
Asph. binders, fluxes																								
Tank car	CL	gal.	0.1182W	0.9i	0.1069	22.00avS	20.40bv	24.00ffv	26.00tvA	.1138		31.00f	18.75cv	18.00dvx	23.70	20.00ev	22.90vtO	0.21u	31.20isv	.1825f	22.50gkvdd	33.00vscc	0.167n	0.2135ee
Drummed	CL	gal.	0.1220W	0.18i	0.1093	46.00avS	30.40bv			.1983							67.83vtO			.1825	40.00gkvdd	38.50	0.211n	0.2367w
Asph. cutback, MC																								
Tank car	CL	ton	0.1222W	0.9i	0.1163w	0.105awF	.10bwH	0.1050twAF	0.1165wSU	30.50		30.24wl#	.0825cwJ	19.50dKx	0.105w	0.095ew	10.16uF	0.095U	0.1403#S	.09f	22.50gNdd	25.50KE	17.80nuE	0.18wee
Drummed	CL	gal	0.1258W	0.18wE	0.11880w	0.22awF	.18bwH			52.45							29.62uF			.092fw	46.50gNdd		22.20nuE	0.235
Road oil, tank car	CL	gal		0.95i	0.1006O	0.14aOR	.08b	0.109		.1100		27.84v	.0675lc	18.50dvaa	0.95	0.085eB		0.095U	0.14#S	.165f	23.25gvWdd	28.75hvY	0.155n	0.191w
Asph. emul. RSI																								
Tank car	CL	gal.	0.1288W	0.10i	0.1069	0.150R		0.1265		0.1138		0.152	.10	21.40jXv	0.137bb	0.095eBL	10.15u		0.1403i	.18250	23.50gvXdd	25.80hvX	0.242n	0.204Zee
Drummed	CL	gal	0.1327W	0.19i	0.1093O				0.21A	0.1983		0.29		.1842jXv		0.1905eB	29.81u			.30	.2023gXdd	49.80hrvX	0.27nX	.26Zee

PAVING BRICK & BLOCK: •a Less 2% disc. 10th. •b 3 x 3¼ x 8. •c 2¼ x 8 x 4. •d Truckload lots. •e Not used. •f 2" interior 6 lb tr. •g Less $1 /Mdisc. 15th. •h 2" tr. 8 lb. •i 3 x 3½ x 8½. •j 2½", 6 lb. tr. •k Used. •l Redshale. •m Pine; oak $6.57. •n Truck del. •o Less $1 M disc. 15 days. •p Used: $40; new: $80. •q Lots of 50M.

ASPHALTS: •a F.o.b. refinery, Everett, Mass. •b F.o.b. refinery, Lockport, Ill. •c F.o.b. Sugar Creek, Mo. •d F.o.b. refinery, El Segundo. •e F.o.b. Baton Rouge. •f F.o.b. Hartford, Ill. •g F.o.b. refinery, Richmond, Calif. •h F.o.b. Martinez. •i F.o.b. refinery, Baltimore. •j F.o.b. refinery, Inglewood, Calif. •k 50-110 penetr. •l Less than 100 penetr. •m 40/300 penetr. •n F.o.b. refinery, Montreal. Fed. tax included; add 6% for mun. & prov. •o Drums not avail. Shipped in steel bbl. •p 60/70 penetr. •r In customer's drums. •s Shipped in drums, per drum. •t 150/300 penetr. •u Per 100 gal •v Per ton. •w Per gal. •x Also tank trucks •y F.o.b. Oakland. •z F.o.b. Edmonds. •A F.o.b. refinery, Cleveland. •B F.o.b. Destrehan, La. •E RC. •F Also RC. •G Also MS •H RC 0-5 incl. •I MC 4. •J MC, RC $0.095. •K MC 3, 4, & 5. •L MS. •M MC 1-5, RC 1-5, $0.0918. •N MC 3. •O Truckload. •P F.o.b. refinery, Atlanta. •Q F.o.b. Eldorado, Ark. •R Delivered within 50 mi. •S Less 2% disc. 10 days, net 30. •T Less 1% disc. 10 days. •U F.o.b. refinery. •V Less 2% disc. 15 days. •W SC 2. •X RS 1. •Y SC 1. •Z Incl. 10% Sales Tax. •aa SC 3, 4, & 5. •bb RS 3. •cc In used drums. •dd less disc of $1 ton. •ee 45 Imp. gal. drums •ff 60-150 penetration



SIX-INCH LOK-COR for the Tech installation was laid out in a herringbone pattern with perforated laterals leading into non-perforated mains. LOK-COR's exclusive Double Lock Seam will not unravel or become disconnected, even under shifting loads, or severe freezing and thawing conditions.

LOK-COR Performance Report: **CARNEGIE TECH**

SUBDRAINAGE INSTALLATION TIME CUT 25%

CARNEGIE INSTITUTE OF TECHNOLOGY—NOVEMBER, 1960. The speed and ease with which Republic LOK-COR Subdrainage Pipe can be installed, and LOK-COR's effectiveness for removing subsurface water were proved in Tech's new athletic field. The contractor advises that 25% was trimmed off time and labor costs with LOK-COR

Site planner and landscape architect on the job was Griswold, Winters, and Swain, Pittsburgh. Mr. William Swain, partner in the firm, states, "*A six man crew put in approximately 800 feet of pipe a day . . . installed the complete subdrainage system in just eight working days. Fittings, clamps, and pipe were easily and rapidly joined.*"

"*I inspected the pipe upon delivery . . . found the coatings unusually uniform and sound. The 20' lengths of LOK-COR made it easier to establish correct slopes as the pipe was installed.*"

FIELD WAS IN TOP PLAYING CONDITION just six weeks after sodding. The installation of Republic LOK-COR was completed August 15, 1960. Sodding was completed September 9th, and the first football game was played on October 22nd. Mr. Swain checked the field after each game and reports, "*Subdrains are functioning very well. Three games have been played on the new sod to date, with no more damage than is expected on established turf. One game was played during the end of a three day rain.*"

To better meet subdrainage requirements on your current and future projects, get complete information on Republic LOK-COR, the new standard in corrugated subdrainage pipe. Send the attached coupon or contact your nearest Republic Drainage Products Distributor.

ONE OF LOK-COR'S MANY TIME- AND MONEY-SAVING FEATURES is that LOK-COR can be installed in a much narrower trench than other types of subdrainage pipe, which require that connections be made in the excavation. At Carnegie Tech the complete LOK-COR subdrainage system was assembled on temporary supports at ground level, then lowered into trenches progressively as wooden supports were removed.

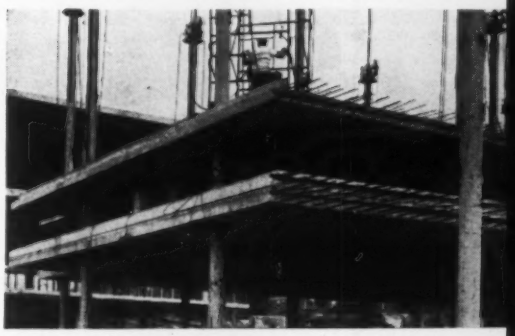
POSITIVE BOND AND ANCHORING, assure support for heavy weight. Truscon Re-Bars form backbones of steel in reinforcing modern highways, concrete slabs, footings, walls, beams, and columns. Truscon uses only new billet steel in Truscon Re-Bars to maintain highest quality standards. Fabricating facilities are located in major building areas to assure on-time deliveries. Shipments are bundled and tagged for quick on-the-job identification and placing.

QUICK, TROUBLE-FREE PERFORMANCE is yours when you use Republic Flexible Plastic Pipe to bring in construction water . . . or drain flooded excavations. Made of tough polyethylene, it resists abrasion and the effects of acids and alkalies. In addition, it is immune to electrolytic action. Lightweight and easy to cut or join, it can be used on job after job.

REPUBLIC STEEL

REPUBLIC HAS THE FEEL FOR MODERN STEEL

Strong
Modern
Dependable



LIFT-SLAB CONSTRUCTION using columns of 10¾-inch O.D. Republic Steel Pipe, helped provide low-cost erection of this Cleveland, Ohio, building. Slabs were poured on ground, then gradually hoisted up the steel pipe columns by means of hydraulic screw jacks. Scaffolding and elevators were eliminated. Mail coupon for details on Republic Steel Pipe.

REPUBLIC STEEL CORPORATION

DEPT. EN-2128-A

1441 REPUBLIC BUILDING • CLEVELAND 1, OHIO

Please send information on:

☐ LOK-COR Subdrainage Pipe
☐ Truscon Reinforcing Bars
☐ Steel Pipe
☐ Flexible Plastic Pipe

Name_____ Title_____

Firm_____

Address_____

City_____ Zone_____ State_____

Choosing *exactly* the right bearing can mean a vital difference in performance, cost and product life. That's why it pays to call Torrington first.

Torrington makes *every* basic type of anti-friction bearing . . . can advise you *impartially* on the best bearing for *your* application. Needle, roller or ball . . . you won't find finer bearings than Torrington. Specify with confidence. If you have a bearing problem, call or write us today. Send for catalog information.

1. Drawn Cup Needle Bearing. Maximum radial capacity in minimum cross section. Easily positioned by press fit. **2. Drawn Cup Roller Bearing.** Ample lubricant storage for smooth starting, cool running, extra-long service life. **3. Heavy Duty Roller Bearing.** Top bearing efficiency and long life under toughest shock conditions. **4. Roller Thrust Bearing.** Precision built for outstanding performance. Large Controlled Contour rollers for maximum capacity. **5. Self-Aligning Ball Bushing.** Low cost unit for top performance in rugged applications. **6. Spherical Roller Bearing Pillow Block.** High radial and thrust capacity. Fast, easy installation. Grease or oil-bath lubrication. **7. Needle Thrust Bearing.** Unequalled capacity for size and weight. Runs directly on hardened ground surfaces, or on standard thrust races. **8. Cam Follower.** Exceptional combination of high capacity, maximum toughness, dependable performance under shock loads. **9. Spherical Roller Bearing.** Precision engineered for maximum efficiency, optimum service life. Self-aligning.

progress through precision **TORRINGTON BEARINGS**

THE TORRINGTON COMPANY Torrington, Connecticut • South Bend 21, Indiana

Bids Asked—Low Bidders—Contracts Awarded—

CALLING FOR BIDS

NEW ENGLAND

▲ **Mass., Woburn**—BA 9/13—City, Supt. P. Wks., City Hall, 10 Common St., SENIOR HIGH SCHOOL ADDN. $3,500,000. Extended date. Edward J. Tedesco, 15 Pleasant St., Woburn, Mass., archt. Cleverdon, Varney & Pike, 120 Tremont St., Boston, Mass., struct. engrs. CD 8/9/61.

HEAVY CONSTRUCTION—LB & CA

▲ **MAINE**—State Hy. Comn., Augusta, ROADS, Me.—**Frank Rossi & Sons, Inc.**, Gardiner, Me., CA **$1,237,004**, (5 bidders), c. conc. road 2.444 mi. Town of Brunswick. FAP Nos. U-026-1(22) and F-026-1(17), Contr. 1, Cumberland Co. BA 8/23. CD 8/15/61.

Clark & Fray, 631 Lindley St., Bridgeport, Conn., LB **$613,325**, (4 bidders), INTERCEPTING SEWER, Commerce St., Frontage Road, Front St., Morgan St., and Market St., 3,470 ft. 48 in. rein.-con. pipe, HARTFORD, CONN. Metropolitan Dist. Bd. Contract & Supply, 115 Broad St., Hartford, Conn. BA 8/24/61. CD 8/15/61.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

▲ **D. C., Wash.**—BA 9/20—D. C. Govt. Dpt. Sanitary Engineering, 499 Pennsylvania Ave., NW, Unit No. 9, The Nichols Segment and River crossing of Potomac Interceptor Sewer. CD 7/14/60.

▲† **Pennsylvania**—BA 10/4—U. S. Eng., 925 New Federal Bldg., Pittsburg, Zone 19, Allegheny Reservoir DAM, combination conc. gravity structures and rolled earth fill embankments, spillway, stilling basin, eight sluice conduits, prestressed concrete service bridge, rolled earth fill, tainter gates, access roads and parking areas, Allegheny Reservoir, Allegheny River, Warren County, approx. 9 mi. above Warren, ENG-36-058-62-3. CD 10/17/60.

▲ **Pa., Southampton**—BA 10/5—Upper Southampton Sewer Authority, (Attention: Charles P. Maolo, Chairman) Shelmire Elementary School, Pennsylvania Ave. and Street Road, Southampton, Contr. 1, SEWERAGE SYSTEM; Contr. 2, general constr. pumping station; Contr. 3, electrical work for pumping station. Plans deposit $70-Contr. 1, $25, Contr. 2, $25, Contr. 3. Gannett Fleming Corddry & Carpenter, Inc., 600 North Second St., Harrisburg, Engr. CD 2/24/61.

BUILDINGS—BA

▲ **N. Y., Massapequa Park**—BA 9/26—Bldg. Comn. Diocese of Rockville Centre, 253 Sunrise Hy., Rockville Centre, N. Y., 1 story 5,000 sq. ft. Our Lady of Lourdes CONVENT and 2 story 45,000 sq. ft. SCHOOL. $1,250,000. George Dippel, 187 Brooklyn Ave., Massapequa, N. Y., archt. Jos. Wohlpart Assocs., 155 E. 42 St., New York 17, N. Y., mech. engrs. Kenneth J. Tomann, 450 7 Ave., New York 1, N. Y., struct. engr. CD 8/25/61.

▲ **N. Y., Deer Park**—BA 9/27—Diocesan Bldg., Office, 253 Sunrise Hy., Rockville Centre, N. Y., CHURCH, 24-classroom SCHOOL, CONVENT and PARISH HOUSE near Deer Park Ave. $1,750,000. Chapman, Evans & Delehanty, 50 Broadway, New York 5, N. Y., archts. Syska & Hennessey, Inc., 144 E. 39 St., New York 16, N. Y., mech. engr. CD 7/14/61.

▲ **N. Y., Brooklyn**—BA 9/13—Deputy Supt. Schools, Bureau Constr. 42-15 Crescent St., Long Island City Zone 1, general constr., plumbing and drainage, heating and ventilating and electrical work and lighting fixtures PUBLIC SCHOOL 242 ADDN., Flatlands Ave. and E. 100 St., Brooklyn Boro. Extended date. Plans deposit $25 general, $10 mechanical trades. CD 7/27/61.

HEAVY CONSTRUCTION—LB & CA

▲ **Horn Constr. Co., Inc.**, 2174 Hewlett Ave., Merrick, N. Y., LB **$1,769,640**, (4 bidders), 2,000 ft. steel sheet piling BULKHEAD, timber piers for Marina and Fishing Pier incl. land reclamation and parking, Magnolia Blvd., LONG BEACH, N. Y. City, City Hall, W. Park Ave., Long Beach, N. Y. BA 8/24. CD 8/10/61.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton, ROADS,
Franklin Contracting Co. Inc., U. S. Hy. 46, Little Falls, N. J., CA **$2,082,674**, 1.5 mi. section Interstate Rte. 287 Boonton, Morris Co., BA 8/10/61. CA 8/23/61. CD 8/14/61, under LB.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton, ROADS,
Public Constructors, Inc., Erial Rd., Blenheim, Blackwood, N. J., CA **$3,904,334**, grading, paving, bridges for 1.667 mi. Interstate Rte. 287, Section 3B, from New Durham Rd. to Prince St. Proj. I-IG-287-1(191)2, Middlesex Co., BA 8/11/61. CA 8/23/61. CD 8/15/61, under LB.

▲ **MARYLAND**—State Rds. Comn., 300 W. Preston St., Baltimore, Zone 3, Bids opened 8/22, ROAD,
Lycoming Constr. Co., Williamsport, Pa., LB **$1,541,847**, (4 bidders), grade, drain, surf. 1.869 mi. (dual lanes) Jones Falls Expressway-Falls Rd. to Baltimore Beltway and Green Spring Valley Rd. incl. one-4 span steel beam bridge and two box culvts. Proj. B-750-1-423, Baltimore Co. (**Correction**—Low Bidder). CD 8/24/61, under LB.

▲ **McCloskey Co.**, 1620 W. Thompson St., Philadelphia, Pa., CA **$3,447,992**, Southwest freeway to South Capitol St., BRIDGE, 1104, piers and abutment, WASH., D. C. D. C. Govt. Dpt. Hys., 499 Pennsylvania Ave., NW, Wash., D. C. BA 8/8/61. CD 8/4/61.

BUILDINGS—LB & CA

▲ **Kayfield Constr. Corp.**, 130 Cutter Mill Rd., Great Neck, N. Y., LB **$1,250,000**, combined bid two GRADE SCHOOLS, Memorial Field and Forest Field, OYSTER BAY, N. Y. Oyster Bay-East Norwich School Dist., E. Main St., Oyster Bay, N. Y. BA 8/24. CD 8/22/61.

▲ **Leo & Julian Chimil**, 445 Foothills Rd., Somerville, N. J., Owner Builds, **$1,125,000**, 50 HOUSES S. Adamsville Rd., BRIDGEWATER, N. J. Robert Baker, 219 Amboy Ave., Metuchen, N. J., archt. Walter Kaska, Greenbrook Rd., Greenbrook, N. J., engr.

▲ **O. A. Peterson Constr. Co. Inc.**, 78 N. Willow St., Montclair, N. J. CA **$1,000,000** CATHOLIC ACTION CENTER, auditorium, cafeteria, gymnasium, classrooms, parking facilities, NEWARK, N. J. Our Lady of Good Counsel Church, 654 Summer Ave., Newark, N. J. BA 7/27. CA 8/2 CD 8/2/61 under LB.

▲ **E. C. Machin, Inc.**, 1024 N. Quebec St., Allentown, Pa., CA **$5,000,000**, mfg. PLANT **No. 22 Addn.**, ALLENTOWN, PA. Western Electric Co., 195 Broadway, New York City N. Y.

▲ **F. D. Rich Constr. Co., Inc.**, 550 Summer St., Stamford, Conn., CA **$2,173,000**, 187 units, Morton HOUSING DEVELOPMENT, Morton St., etc., PHILA., PA. Phila. Housing Authority, 42 S. 15th St., Phila., Pa. Hatfield Martin & White, 266 S. 17th St., Phila., Pa., archts. Nicholson Rothbaum & Davis, 215 S. Broad St., Phila., Pa., engrs. CD 9/21/59.

▲ **Donohoe Constr. Co.**, 314 Pennsylvania Ave., SE, Wash., D. C., CA **$3,000,000**, 9 story brick, cinder block and concrete HOTEL, 1201 K St., NW, WASH., D. C. Leon F. Lamb & Ned Bord, 314 Pennsylvania Ave., SE, Wash., D. C. W. B. and J. M. Hallett, 200 3rd St., SE, Wash., D. C., archts.

▲ **J. Roland Dashiell & Co.**, 647 S. Salis Blvd., Salisbury, Md., LB **$1,197,370**, (5 bidders), 2 story, STATE WELFARE HOME ADDN., SMYRNA, DEL. Delaware State Welfare Home, Smyrna, Del. BA 8/24/61. CD 8/9/61.

SOUTH

BUILDINGS—BA

▲ **La., Hammond** — BA 9/12 — Southeastern Louisiana College, (1) two-2 story men's DORMITORIES; (2) two-2 story women's DORMITORIES. Curtis & Davis, 2475 Canal St., New Orleans 19, La., archts. (1). Roessle & Von Osthoff & Frink, 810 Maison Blanche Bldg., New Orleans 16, La., archts. (2). CD 9/11/56.

HEAVY CONSTRUCTION—LB & CA

▲ **LOUISIANA**—State Dpt. Hys., Rm. 426, Headquarters Admin. Bldg., Baton Rouge, bids opened 8/23, ROAD,
Flenniken Constr. Co. Inc., 3820 Florence Ave., Shreveport, La., LB **$2,038,548**, grading, drainage structures, c. conc. 3.352 mi. Lake Charles Expressway, Rte. I-10, SP Nos. 740-00-15 and 3-04-40 FAP Nos. I-10-1(15)29 and F-35-(25), Calcasieu Parish. CD 8/8/61.

BUILDINGS—LB & CA

▲ **Altimont Bros., Inc.**, 4929 Bethesda Ave., Bethesda, Md., LB **$1,303,632**, (6 bidders), WOMEN'S DORMITORY and DINING FACILITIES, Marymount Junior College, ARLINGTON, VA. Archdiocese of Virginia, 807 Cathedral Ave., Richmond, Va. BA 8/24/61. CD 8/22/61.

▲ **John P. Pettyjohn & Co.**, 212 Eighth St., Lynchburg, Va., CA Est. **$1,000,000**, OFFICES, LYNCHBURG, VA. Craddock Terry Shoe Co., Carroll Rd., Lynchburg, Va. BA 8/15/61. CA 8/21/61. CD 7/31/61.

▲ **Ervin Constr. Co.**, 3400 Rozzells Ferry Rd., Charlotte, N. C., Owner Builds, **$1,800,000**, 155 RESIDENCES, Brookfield Subdivision, CHARLOTTE, N. C.

▲ **Daniel Constr. Co.**, 429 N. Main St., Greenville, S. C., CA Est. **$5,000,000**, COTTON MILL NO. 2, NINETY-SIX, S. C. Greenwood Mills, Greenwood, S. C. CD 7/20/61.

▲† **Algernon Blair Inc.**, 1209 1st National Bank Bldg., Montgomery, Ala., CA **$1,247,500**, ALTERATIONS, ADDNS. to Bldgs., 1, 63 and 117, Veterans Administration Center, Gulfport Div., BILOXI, MISS. Veterans Admin., Munitions Bldg., Wash., D. C. BA 7/11. CD 7/14/61, under LB.

▲ **Rannie Terrall Constr. Co.**, Box 545, Farmerville, La., CA **$1,577,123**, Unit A, Men's DORMITORY; Unit B, Women's DORMITORY, Louisiana Polytechnic Institute, RUSTON, LA. State Bd. Educ., State Capitol, Baton Rouge, La. CA 8/22. CD 8/21/61, under LB.

Gaines Home Builders, 1200 Gallatin Road, Nashville, Tenn., Owner builds **$800,000**, 80 RESIDENCES, Parkwood subdivision, NASHVILLE, TENN.

Herb Summar Constr. Co., 3rd. National Bank Bldg., Nashville, Tenn., Owner builds **$750,000**, 50 RESIDENCES, NASHVILLE, TENN.

MIDDLE WEST

BUILDINGS—BA

▲ **Wis., Superior**—BA 9/19—Superior Memorial Hospital, Inc., 1213 Tower Ave., 2 story, 74 bed MEMORIAL HOSPITAL, 34th St. and Tower Ave., south edge of city. $1,300,000. Plans deposit $75. M. R. Dobberman and K. W. Helske, 204 Board of Trade Bldg., Superior; and Bettenburg, Townsend, Stolte & Comb, 1437 Marshall Ave., St. Paul, Minn., assoc. archts.-engrs. CD 3/31/60.

O., **Canton**—BA 9/21—Canton Local School Dist., Canton South High School, 600 41st St., JUNIOR HIGH SCHOOL, Plans deposit $100. Firesstone & Motter, 1412 Cleveland Ave. NW, archts. CD 7/28/61.

HEAVY CONSTRUCTION—LB & CA

▲ **Penker Constr. Co.**, 1030 Summer St., Cincinnati, O., LB **$4,288,000** (4 bidders) COVERING EDEN PARK RESERVOIR, CINCINNATI, O. City, City Hall, Cincinnati, O. BA 8/23/61. CD 7/28/61.

▲ **Hunkin-Conkey Constr. Co.**, 1740 E. 12th St., Cleveland 14, O., LB **$2,405,315**, est. $2,775,000, (4 bidders), SEWAGE PLANT EXPANSION, ELYRIA, O. City, City Hall, Elyria, O. Havens & Emerson, 640 Leader Bldg., Cleveland 14, O., engrs. BA 8/23/61. CD 8/1/61, under LB.

▲ **Stedke Constr. Co., 1101 Spencerville Rd.**, Lima, O., LB **$1,230,000**, HIGH SCHOOL, LIMA, O. Bath Local School Dist., 2030 Bible Rd., Lima, O. CD 11/29/60.

▲ **Cunningham Limp Co.**, 3087 W. Grand Blvd., Detroit 2, Mich., CA Est. **$1,500,000**, 1 story, 215,000 sq. ft. FOOD DISTRIBUTION CENTER, OFFICE, WAREHOUSE, 375,000 cu. ft. PERISHABLE STORAGE, Interstate Industrial Park, north of city, FORT WAYNE, IND. Food Marketing Corp., 1300 Herbert St., Fort Wayne, Ind.

▲ **Tousley Constr. Co.**, 925 E. St. Clair St., Indianapolis Ind, CA **$1,016,500**, extending north branch BELMONT INTERCEPTOR SEWER from 42nd and Crooked Creek north to 79th and Ditch Rd., INDIANAPOLIS, IND. Bd. Sanitary Comrs., 421 N. Pennsylvania St., Indianapolis, Ind. BA 8/11/61. CD 8/23/61, under LB.

▲ **Michael Pontarelli Inc.**, 4240 N. Kilpatrick Ave., Chicago, Ill., CA **$1,019,349**, Contract No. 3, AUXILIARY OUTLET SEWERS, near South Side System, Proj. 80.82-61 28, CHICAGO, ILL. Dpt. Purchases, City Hall, Chicago 2 Ill. BA 6/28/61. CA 8/22/61. CD 7/6/61 under LB.

▲ **Arcole Midwest Corp.**, 3225 Main St., Skokie. Ill., LB **$1,636,052** est. $1,600,000, C. CONC. PAVING, South Rte. Expressway, curbs, gutters, storm sewers, Proj. S 2526.6-1P, CHICAGO, ILL. Dpt. Purchases, City Hall, Chicago 2, Ill., BA 8/23/61. CD 8/1/61.

▲ **Palumbo Excavating Co.**, 2738 Harrison St., Chicago, Ill., LB **$2,213,668** est. $1,972,000, dual c. conc. ROAD PAVING, EXCAVATION, Proj. 066-1919.15A, 066-1919-15 CHICAGO, ILL. Bd. Comrs. Cook Co., County Bldg., Chicago 2, Ill. BA 8/22/61. CD 8/1/61.

J. M. Corbett Co., 2500 Corbett St., Chicago, Ill. and **Rock Road Constr. Co.**, 5919 N. Rogers St., Chicago, Ill., LB **$1,619,074** est. $1,500,000 c. conc. and C1 1-11 BIT. PAVING, CURB and GUTTER 7,896 ft. 8 in. STORM SEWER 3 mi. Pulaski Rd., Proj. 051-2023-MFT, (Chicago, Ill.) CD 8/10/61,

Frenzel Bros. Co., 3015 N. California Ave., Chicago Ill., LB **$359,425** est. $300,000, c. conc. ROAD PAVING, CURB and GUTTER, STORM SEWERS, Proj. 116-070B, 051-4242 Glenview and Wilmette (Chicago, Ill.) CD 8/1/61,

National Advertising Co., 6850 S. Harlem Ave., Bedford Park, Ill., LB **$503,317**, install SIGNS, Northwest Expressway and Edens Expressway (Chicago, Ill.)

American Asphalt Paving Co., 9701 S. Torrence Ave., Chicago, Ill., LB **$447,368**, COLORPHALT RESURF. Kingery Expressway (Chicago, Ill.)

Chicago Paving & Constr. Co., 12701 S. Doty Ave. Chicago, Ill., LB **$377,733**, COLORPHAT MIX RESURF Expressway, 130th St. to Indiana Line and Dolton to Little Calumet River, (Chicago, Ill.) CD 12/28/60.

▲ **WISCONSIN**—State Hy. Comn., Room 535, State Office Bldg., Madison, ROAD,
James Cape & Sons, Co., 701 Water St., Racine, Wis. CA **$1,872,218**, Contr. 1, grade, base course, p.c.c. pavement, 1.670 mi. North-South Expressway (West Keefe Ave.-West Lexington Blvd.) USH 141, Milwaukee Co., BA 8/1/61. CD 8/7/61 under LB.

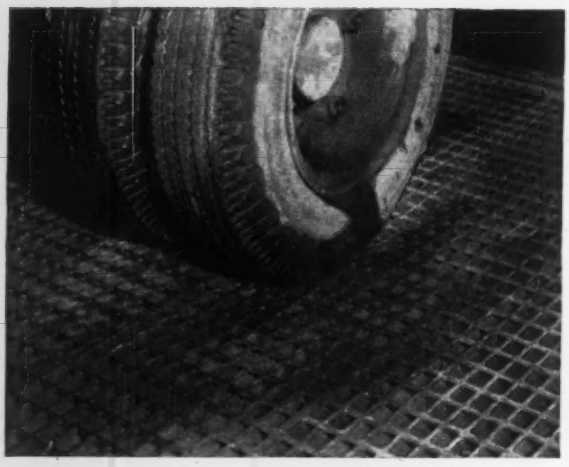
MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

† **Utah**—BA 9/12—North Utah County Water Conservancy Dist., Room 1, Memorial Bldg., 51 North Center, Lehi, 13,300 lin. ft. of conc. lining and appurtenant STRUCTURES, clearing and stripping, 13,100 lin. ft., earthwork (canal pad preparation) 12,440 lin. ft., conc. lining, etc., American Fork Dry Creek Watershed-Utah County, for Soil Conservation Service. CD 12/22/60 under LB.

Neb., Omaha—BA 9/13—Sanitary & Imprv. Dist. No. 73, c/o Lamp, Rynearson & Associates, Inc., engrs. 420 S. 17th St., Omaha, OUTFALL SEWER LINE, 5,658 ft. vcp. 10 to 21 in., 16 manhole rings and covers, precast manhole, crushed rock, etc, approx. $88,000. Plans deposit $10.

† **Arkansas**—BA 9/14—U. S. Eng., P.O. Box 97, Memphis, Tenn., clearing, grubbing, interim closure embankment, fertilizing, sodding, river closure, Item No. L-55 SFF, below widener, St. Francis Basin Proj.,



Heavy mobile loadings call for Gary HEAVY-WELD STEEL GRATING

Advanced design of Gary Heavy-Weld Gratings makes them ideal for any installation where heavy-duty open steel flooring is desirable. New design has the capacity to sustain heavy mobile loadings imposed by highway vehicles, lift trucks, and all classes of aircraft. Straight clean lines of the rectangular pattern permit unimpeded flowage and afford maximum open area. Wide range of sizes and meshes makes Gary Heavy-Weld Gratings adaptable for a variety of applications.

- **Airfield drainage covers**
- **Industrial floor openings**
- **Aggregate screens**
- **Highway inlets & trenches**
- **Vehicular ramps**
- **Trash racks**
- **Scrubber trays**

A New Catalog has a unique series of charts for use in determining the exact size and type of Heavy-Weld Grating for your particular application. Handy tables simplify the problem of specifying exactly the right grating for every load requirement. For your free copy of catalog No. H-760 write today to Dept. I-17.

ROCKWELL-STANDARD CORPORATION

Grating Division, Gary, Indiana

▲† **New Mexico**—BA 9/19—U. S. Eng., P.O. Box 1538, Albuquerque, LEVEE AND CHANNEL IMPRVTS., Rio Grand Floodway, Bosque Bridge to Rio Puerco, Socorro Co., ENG-29-006-62-1, $1,000,000. CD 8/24/61.

BUILDINGS—BA

▲ **Neb., Omaha**—BA 9/26—University of Nebraska College of Medicine, 42 and Dewey Sts., Omaha, 6 story, Eugene D. Eppley Institute of RESEARCH FOR CANCER & ALLIED DISEASES, $1,800,000. John Laternser & Sons, 1307 Farnam St., Omaha, archts. CD 5/11/60.

HEAVY CONSTRUCTION—LB & CA

▲ **MINNESOTA**—State Hy. Dpt., Capitol Approach, St. Paul, ROADS,

Minn.—**Barton Contg. Co.**, Osseo, Minn., CA **$1,210,584**, conc. pavt. and shouldering 4.1 mi. Ramwey Co.; CA **$648,160**, conc. pavt. and shouldering 2.9 mi., Washington Co.

Minn.—**Woodrich Constr. Co.**, Hopkins, Minn., CA **$1,892,467** conc. pavt. and shouldering 10.5 mi. St. Paul, Mower Co. BA 8/18. Grand Total $3,751,211. CD 8/23/61, under LB.

▲† **Emil Anderson Constr. Co. Ltd., Square M Constr. Ltd., and Coleman Collieries Ltd.**, 5763 Oak St., Vancouver, B. C., LB **$3,347,403**, est. $3,621,982, 1.6 mi. ACCESS ROAD, Clark Canyon Dam, Beaverhead Co., MONTANA. Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Zone 25, Colo. BA 8/24/61. CD 7/18/61.

▲ **COLORADO**—State Hy. Dpt., 4201 East Arkansas Ave., Denver, Bids opened 8/25, ROAD,

Harrison Constr. Co., 1314 West Oxford Ave., Denver, LB **$1,253,772**, (6 bidders), grading structures near Loveland, Proj. I 25-3(27)251, Larimer and Weld Counties. CD 8/9/61.

BUILDINGS—LB & CA

▲ **Melvin C. Odell & Assocs.**, 4808 Delmar, Shawnee-Mission, Kan. Owner Bluilds., **$1,250,000.** Eighteen 2 story, 24 x 120 brick exterior, air-conditioned APARTMENTS, KANSAS CITY, KAN. Horner & Horner, 1401 Fairfax Trafficway, Kansas City, Kan., archt.

▲ **S. Patti Constr. Co.**, 1340 Admiral Blvd., Kansas City, Mo., CA Est. **$1,308,000,** remodel B-O-P ASSEMBLY PLANT, Fairfax Dist.-changing assembly line, KANSAS CITY, KAN. General Motors Corp., General Motors Bldg., Detroit, Mich. CD 12/10/52.

▲ **W. H. Wallace Constr. Co.**, 2330 Hardwick St., Dallas, Tex., LB Est. **$1,500,000,** Bishop Lynch Memorial HIGH SCHOOL, DALLAS, TEX. Catholic Diocese of Dallas & Fort Worth, 2122 Kidwell St., Dallas, Tex. BA 8/22/61. CD 8/1/61.

▲ **Smith & Williams**, 6222 N. Central Expressway, Dallas, Tex., CA **$1,750,000,** Senior Citizens HOME, Old Gate Lane and Garland Road, DALLAS, TEX. Autumn Leaves, Inc., 1915 Province St., Dallas, Tex. Williams & Reeves, 6222 N. Central Expressway, Dallas, Tex., archts.-engrs. CD 8/16/61.

▲ **T. C. Crist, Inc.**, 5639 Dyer St., Dallas, Tex., CA **$1,400,000,** 1 story, FACTORY and OFFICE, GARLAND, TEX. Dearborn Stove Co., 1700 W. Commerce St., Dallas, Tex. BA 7/28/61. CD 8/22/61, under LB.

Brown & Root, Inc., P.O. Box 3, Houston, Tex., CA **$258,100,** PLANT, GILMER, TEX. Pittsburg Standard Conduit Co. c/o Contractors.

▲ **Linbeck Constr. Corp.**, 2720 Saint St., Houston, Tex., CA Est. **$6,000,000,** Phase 1, 12 story, bsmnt., masonry, HOTEL swimming pool HOUSTON TEX. Cullen Center Inc., 1st. City National Bank Bldg., Houston, Tex. BA 8/16/61. CD 8/1/61.

▲ **Tellepsen Constr. Co.**, 1710 Telephone Rd., Houston, Tex., CA **$3,800,000,** 12 story, bsmnt., 220,000 sq. ft. struc. steel, precast facing, OFFICE Capitol and Fannin Sts. HOUSTON, TEX. Houston First Federal Savings & Loan Assn., 1114 Capitol Ave, Houston, Tex. Cameron Fairchild & Associates, 2626 W. Dallas Ave., Houston, Tex., archts. Walter P. Moore, 2 Pinedale St., Houston, Tex., engr. CD 9/13/60.

▲ **Ram Building Co.**, 816-17th St., Wichita Falls, Tex., Owner Builds, **$1,088,000,** 86 DWELLINGS, Lincoln Heights, WICHITA FALLS, TEX. CD 8/15/61.

BUILDINGS—BA

▲ **Calif., San Diego**—BA 9/26—San Diego Unif. Scchool Dist., 4100 Normal St., Zone 3, 178,500 sq. ft. wood-frame James Madison SENIOR HIGH SCHOOL, Bolivar Dr. and Javier St., Clairemont Area. $3,138,900. Plan deposit $15. Wulff & Fifield, 1422 6 Ave., San Diego 1, Calif., archts. CD 6/13/60.

HEAVY CONSTRUCTION—LB & CA

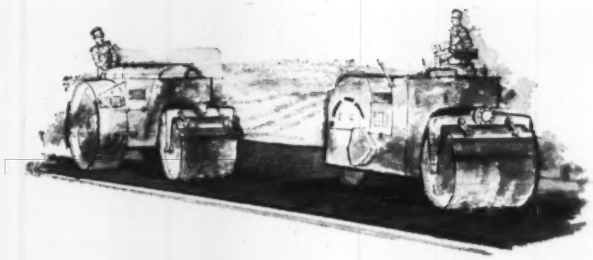
▲ **IDAHO**—Dpt. Hys., 3211 State St., Boise, ROAD,

Jack B. Parson Constr. Co., 250 N. 3rd St. E., Smithfield, Utah, CA **$1,370,514,** 4-lane divided roadway, drainage structures, plant-mix bit. surf. four concrete overpasses, two concrete underpasses, 2.345 mi. Interstate 15 and 0.409 mi. Pocatello Creek Connection, Bannock Co. BA 8/15/61. CA 8/22/61. CD 8/22/61, under LB.

▲ **ARIZONA** — State Hy. Dpt., 206 S. 17th Ave., Phoenix, ROADS,

Fisher Contr. Co., P.O. Box 6306, Phoenix, Ariz., CA **$1,389,071**, est. $1,311,947 (5 bidders), grading, draining, roadway, furnishing, placing surgrade seal, select material, aggregate base, asphaltic concrete, furnishing, applying emulsified asphalt seal coat, be-

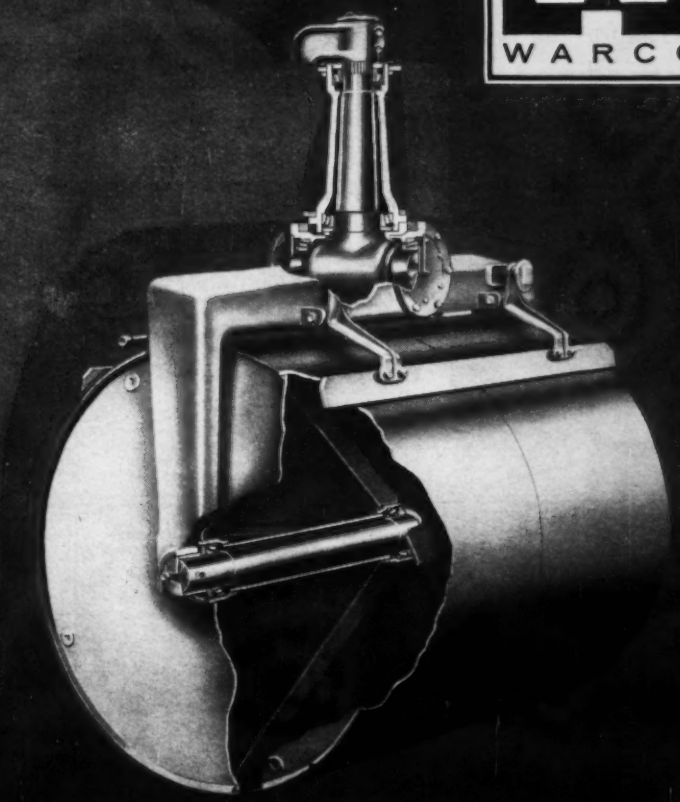
Better rolling with less maintenance



For years a major problem confronting owners of rollers has been road "scuff" caused by looseness in the guide roll assembly. Huber-Warco engineers have solved this problem by making it easy to adjust all elements of the guide roll right on the job. Owners of Huber-Warco tandem and 3-wheel rollers will find a yoke design that permits accurate adjustment of tapered roller bearings at the kingpin, yoke swivel pin and roll axle. As a further precaution against looseness, we have set the bearings on the swivel pin and kingpin wider apart as well as designing a steering arm that is splined — not keyed — to the top of the kingpin, spreading the shearing load around the entire circumference of the pin. Extra long life of the assembly is further assured since all points of movement receive full pressure lubrication. With Huber-Warco design you are assured indefinite factory-perfect guide roll assembly adjustment. See your local Huber-Warco distributor for all the details on the tandem and 3-wheel rollers soon.

HUBER-WARCO COMPANY • MARION, OHIO, U.S.A.

HUBER
W
WARCO



BUILT FOR PROFIT

This is the door ...

This is the motor operator ...

This is the name

KINNEAR®
ROLLING DOORS
Saving Ways in Doorways

— the world's favorite push-button controlled, space-saving, upward-acting doors that are built to give you more protection and longer, more efficient door service at lower cost.

The KINNEAR Manufacturing Co.

Offices and Representatives in All Principal Cities

1820-40 Fields Avenue
Columbus 16, Ohio
1742 Yosemite Ave.
San Francisco 24, Calif.

New book tells

Where ...
How ...

to place reinforcing bars

Written for bar setters and inspectors ... as a manual for apprentice courses ... and a reference for specification writers, architects, engineers, and detailers.

Contains complete specifications and instructions for placing reinforcing bars, welded wire fabric, and their supports.

Prepared under the direction of the C.R.S.I. Committee on Engineering Practice.

287 PAGES
HANDY POCKET SIZE
$3.00
No C.O.D. orders accepted
Refund if returned within 10 days.

Concrete Reinforcing Steel Institute
38 South Dearborn Street (Dept. L)
Chicago 3, Illinois

ginning approx. 7½ mi. east Springerville, extending northeasterly over new alignment US Rte. 60 to Arizona-New Mexico State line, approx. 5.75 mi. Show-Low Springerville East Hy., Apache Co. BA 8/21/61. CA 8/22/61. CD 8/8/61.

▲ **C. J. Montag & Sons**, 7805 NE Halsey St., Portland, Ore. and **Salem Sand & Gravel Co.**, Box 2207, Salem, Ore., LB $808,134, (4 bidders), Schedule 1, SEWER PROJECT, LB $427,928, (1 bidder), Schedule M, SEWER PROJECT, SPRINGFIELD, ORE. City, City Hall, Springfield, Ore. BA 8/18/61. CD 8/2/61.

Paul Ferneding, 2115 E. 27th St., Vancouver, Wash., LB $92,753, (1 bidder), Schedule R, SEWER PROJECT, (Springfield, Ore.)

Wildish Constr. Co., Box 1106, Eugene, Ore., LB $321,362, (2 bidders), Schedule H, SEWER PROJECT, (Springfield, Ore.)

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento, ROAD,

Harms Bros., 5261 Stockton Blvd., Sacramento, Calif., CA $1,114,865, grading, surf., 5.7 mi. 2 lane expressway Sign Rte. 88 between 2 mi. east of Peddler Hill and 2.5 mi. east of Corral Flat, Amador Co. BA 8/9, CA 8/22. CD 8/14/61, under LB.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento, bids opened 823, ROAD,

Madonna Constr. Co., 399 Freeway St., P.O. Box 910, San Luis Obispo, Calif., LB $1,084,366, grade, pave 6.6 mi. access control two lane road, State Rte. 166 between U. S. Hy. 101 near Santa Maria and 1 mi. west of Huasna River, San Luis Obispo Co. CD 7/26/61.

▲† **John M. King Co.**, 1601 Taylor Way, Tacoma, Wash., CA $1,312,374, 230 kilovolt TRANSMISSION LINES, Trinity-Clear Creek, Clear Creek-Keswick and Spring Creek- Keswick near Lewiston, Trinity and Shasta Counties, Central Valley Proj. DC 5623, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. BA 8/1, CA 8/24. CD 8/4/61, under LB.

▲ **A. Teichert & Son, Inc.**, 1931 Stockton Blvd., Sacramento, Calif., CA $2,078,422 DRAINAGE channels, concrete piping, culverts, Manlove Drainage Assessment Dist. north of here, SACRAMENTO, CALIF. Bd. Supervs. Sacramento Co., 287 7 St., Sacramento, Calif. BA 8/9, CA 8/21. CD 8/15/61, under LB.

▲ **J. S. Barrett**, P.O. Box 2126, Santa Ana, Calif., CA $2,249,943, est. $1,973,700, INTERCEPTOR SEWER No. 3, SAN DIEGO, CALIF. City, City Hall, San Diego, Calif. BA 6/29. CA 8/24. CD 7/5/61, under LB.

▲ **M & J Constr. Co.** and **Vinson Constr. Co.**, 1401 Foothill Blvd., La Canada, Calif., CA $1,015,794, STORM DRAIN Proj. 586, Unit 2, Torrance and Redondo Beach and Proj. 585, Walteria STORM DRAIN, LOS ANGELES, CALIF. Los Angeles Co. Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. BA 8/11. CA 8/22. CD 8/15/61, under LB.

▲ **MacDonald & Kruse**, 3434 Verdugo Rd., Montrose, Calif., LB $1,884,292 (11 bidders), 1958 STORM DRAIN Bond Issue, Proj. No. 557, Norwalk, LOS ANGELES, CALIF. Los Angeles County Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. BA 8/18. CD 7/18/61.

BUILDINGS—LB & CA

▲ **Engstrom & Nourse**, 923 Folsom St., San Francisco, Calif., CA $2,616,800, 3 story SCIENCE BLDG., Alameda County State College, W.O. 4554GC-59, HAYWARD, CALIF. State Div. Architecture, 1120 N St., Sacramento, Calif. BA 8/15. CD 8/18/61, under LB.

▲ **Campbell Constr. Co.**, 800 R St., Sacramento, Calif., CA $4,570,595, Luther Burbank SENIOR HIGH SCHOOL, incl. swimming pool and auditorium, SACRAMENTO, CALIF. Sacramento City Unified School Dist., 1619 N St., Sacramento, Calif. BA 8/21. CA 8/22. CD 8/24/61, under LB.

CANADA

BUILDINGS—LB & CA

▲ **Frid Constr. Co., Ltd.**, 605 James St. N., Hamilton, Ont., LB $3,817,000, (10 bidders), first state SCHOOL for DEAF CHILDREN, 1 story junior school, hospital admin., laundry and boiler plant bldgs., 8 story steel frame, brick staff residence, MILTON, ONT. Dpt. P. Wks., Parliament Bldgs., Toronto, Ont. BA 8/23/61. CD 7/19/61.

▲ **Perini Ltd.**, 49 Jackes Ave., Toronto, Ont., CA $5,670,000, Ryerson Institute of Technology WING, TORONTO, ONT. Dpt. P. Wks., Parliament Bldgs., Toronto, Ont. BA 8/2/61. CA 8/23/61. CD 8/9/61, under LB.

▲ **Commonwealth Constr. Co., Ltd.**, 204 Medical Center, Calgary, Alta., CA $6,022,000, 2nd phase, 13 story, brick, steel HEAD OFFICE, Victoria St., REGINA, SASK. Saskatchewan Power Corp., 1739 Cornwall St., Regina, Sask. BA 8/17/61. CD 8/16/61.

LATIN AMERICA

HEAVY CONSTRUCTION—BA

▲ **Peru**—BA 12/4—Office General Administration Posts & Telecommunications, Central Post Office Bldg., Lima, modernization National TELECOMMUNICATIONS SYS. $20,800,000. Plans deposit $200.

BUILDINGS—LB & CA

▲ **M. W. Kellog Co.**, 711 3 Ave., New York, N. Y., U.S.A., CA design and construct modernizing REFINERY b/d vacuum distillation unit, phenol extraction unit, deisopentanizer and stabilizer units, Barrancabermeja Refinery, COLOMBIA. Ecopetrol, c/o Govt. of Colombia, Cali, Colombia.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Ill., Evanston**—City, City Hall, WATER WORKS, settling and mixing basin facilities, $1,500,000. CD 11/27/59.

▲ **N. Y., Albion**—Village Bd., Village Hall, WATER SUPPLY SYS. $1,760,000. Mussbaumer, Clarke & Velzy, Inc., 327 Franklin, Buffalo, engr. CD 3/24/60.

▲ **Tex., Alice**—City, City Hall, 23 mi. WATER LINE Lake Mathis to Alice. $2,500,000; WATER STORAGE RESERVOIR, $1,000,000. Lockwood, Andrews & Newman, 3230 Reid St., Corpus Christi, consult. engrs. CD 10/8/58.

SEWERS, WASTE DISPOSAL

▲ **Ala., Eufaula**—City, City Hall, SEWAGE TREATMENT PLANT, pumping stations, lines, $1,250,000. J. B. Converse & Co., 508 Dauphin St., Mobile, Ala., consult. engrs. CD 2/5/59.

▲ **Fla., New Smyrna Beach**—City, City Hall, bond election Sept. 19, SANITARY SEWER IMPRVS. $2,400,000. Russell & Axon, Municipal Airport, Daytona Beach, Fla., consult. engrs. CD 3/18/59.

▲ **Ill., Alton**—City, City Hall, $1,625,000 bond election Oct. 24, SEWAGE TREATMENT PLANT, $820,000, interceptor sewers, incl. Piasa Valley Sewer, Upper Alton Sewer imprvs., Broadway, Alton Plaza, The Milton Area and Shields Valley, $7,500,000. Total cost $8,075,000. Shepard, Morgan & Schwab, 10 E. Broadway, Alton, consult. engrs. BA about 2/1/62 for treatment plant. CD 7/13/61.

▲ **Ill., Chester**—City, City Hall, $1,750,000 bond election Sept. 12, (a) SEWAGE TREATMENT PLANT, $650,000, (b) SEWERS, EXTENSIONS, $1,550,000.

▲ **Ind., Bluffton**—City, City Hall, two INTERCEPTOR SEWERAGE TRANSMISSION LINES, $448,000; installing nine SEWER EXTENSIONS, $232,000; SEWERS, Riverview Addn., $112,000; local and relief sewers, $220,000. Henry B. Steeg & Assocs., Inc., 3338 N. Illinois St., Indianapolis, consult. engr.

▲ **Ind., Nappanee**—Village, Village Hall, SEWAGE DISPOSAL PLANT, $1,175,000. CD 1/13/56.

▲ **Okla., Oklahoma City**—City, City Hall, $17,000,000 bond election Oct. 24, SANITARY SEWERS; $7,500,000 bond election Oct. 24, STORM SEWERS. CD 12/19/55.

▲ **Vt., Brattleboro**—Town, Town Hall, INTERCEPTING SEWERS, PUMPING STATION, SEWAGE PLANT. $1,073,000. To go ahead 1963.

BRIDGES

▲ **Calif., Indio**—City, City Hall—GRADE SEPARATION over Jackson St. at Southern Pacific tracks. $1,151,140. To go ahead 1962.

▲ **Fla., Fort Myers**—Bd. Comrs. Lee Co., Courthouse, TOLL BRIDGE over Caloosahatchee River from Cape Coral to Harney Point. $1,700,000.

STREETS AND ROADS

▲ **LOUISIANA**—State Hy. Dpt., Hy. Office Bldg., Baton Rouge, ROADS,

East Baton Rouge Parish—1.2 mi., four lane north and south Foster Dr. northward to Grenell Springs Rd. and Capitol Ave. Baton Rouge. $609,375. Bids Fall 1961.

four lane on Front St. from North Blvd. to Government St. Baton Rouge. $115,905. Bids Fall 1961.

traffic interchange at Airline Hy. and Florida Ave. Blvd., Baton Rouge. $1,250,000. Bids Fall, 1961.

▲ **MINNESOTA**—State Hy. Dpt., Hy. Bldg., St. Paul, ROADS,

Kandiyohi Co.—grading, gravel base and interim bit. surf., 7 mi. SP 3414-04 and SP 3417-0211 from TH 17 west of New London to 7 mi. S, Wilmar. $400,000. Bids this fall.

Winona Co.—7.6 mi. grading, paving and bridge SP S 2805-36, 8504-12, 8504-36 and 8580-01 (TH 61 and 90) from Dakota to La Crescent, Dakota. $1,000,000. Bids this fall. J. H. Swanberg, ch. engr.

▲† **Mississippi**—Tallahalla Creek Watershed Drainage Dist. and Hinds County Soil Conservation Dist., Jackson, Miss., four DAMS, 47,000 acres south and southwest Hinds Co. $1,049,000.

▲ **OHIO**—State Dpt. Hys., State Depts. Bldg., Columbus, Zone 15, ROAD,

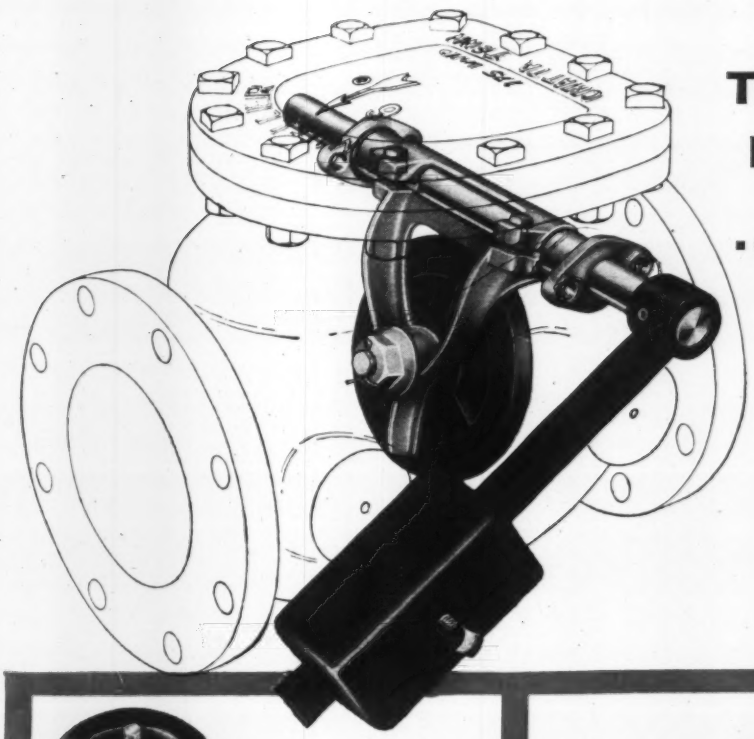
Medina Co.—Interstate 71, 15 mi. section running north from present end east of Medina, $27,000,000. J. E. Greiner, 1106 N. Charles St., Baltimore, Md., consult. engr.

▲ **Okla., Oklahoma City**—City, City Hall, $9,100,000 bond election Oct. 24, STREETS. CD 6/12/61.

Wash., Bremerton—Bremerton—South Kitsap Port Comm., FILLING in tideflats area at Gorst for industrial development, $2,670,000. Reid-Middleton & Assocs., Edmonds, engrs.

AIRPORTS

▲ **Ga., Atlanta**—City, City Hall, plans by Robert & Company Assocs., 96 Poplar St. NW, HANGAR, MAINTENANCE BLDG. Over $3,000,000. Municipal Airport, Eastern Airlines lessee. CD 7/26/61.

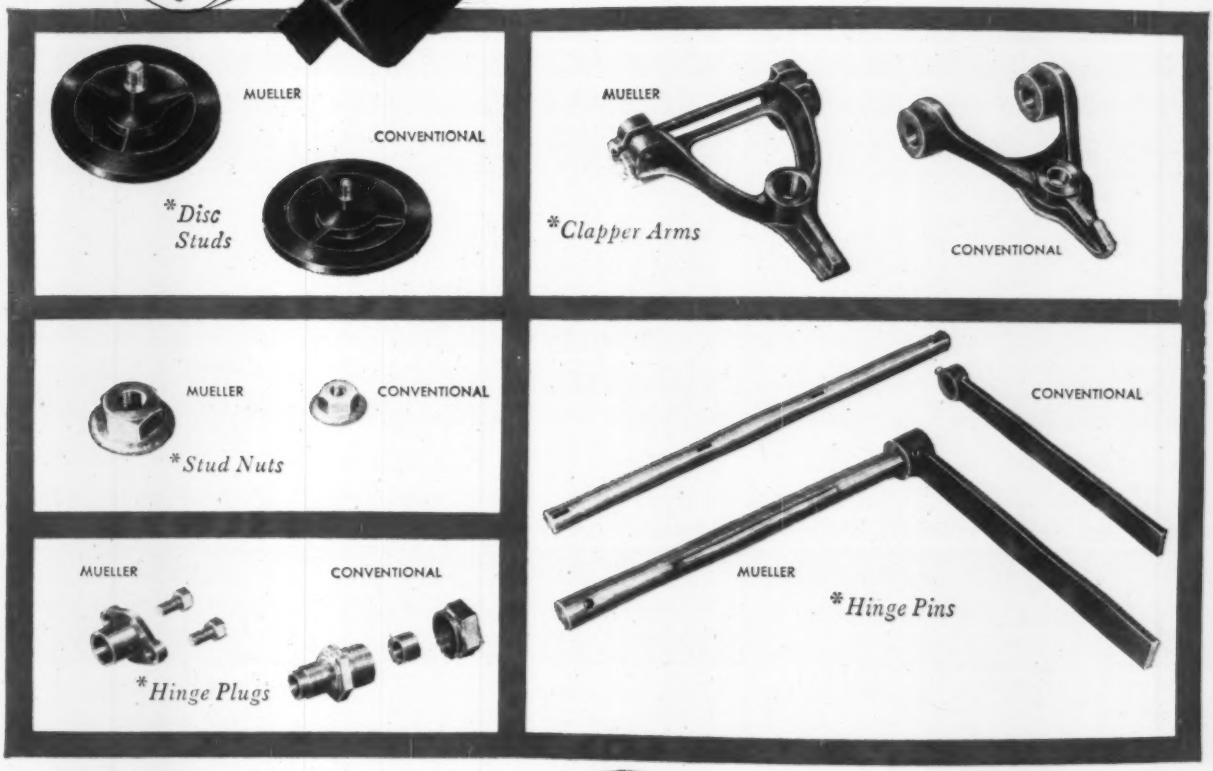


THERE IS A BIG DIFFERENCE*

...and the difference is MUELLER® QUALITY

Compare the parts of a Mueller heavy-duty Check Valve with those of conventional check valves. In each comparison, Mueller parts are either larger, more accurately manufactured or of higher strength materials.

The result is longer service life and more dependable operation without maintenance.



The Heavy-duty Check Valve is typical of the extra care, extra quality built into every Mueller product.

MUELLER CO. since 1857 SERVING the Water and Gas Industries QUALITY

MUELLER CO.
DECATUR, ILL.

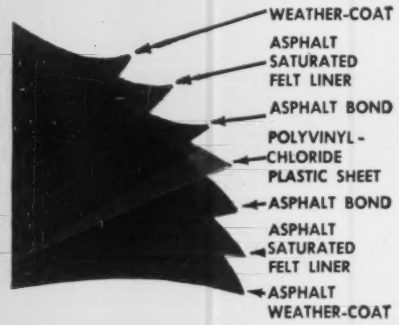
Factories at: Decatur, Chattanooga, Los Angeles
In Canada: Mueller, Limited, Sarnia, Ontario

6165

NEW SEALTIGHT®

"MEADOWMAT"

ASPHALT-PLASTIC LINERS



...for the containment of water, chemicals, brines and sewage.

"MEADOWMAT" Asphalt *armor-coated* plastic Liners combine the strength and elasticity of polyvinyl-chloride plastic with the efficiency and durability of asphalt. This new and unique mat-type liner will effectively solve many problems faced in the control of liquids. Specifically developed to meet the present need for a light-weight, low-cost durable and efficient lining material. "MEADOWMAT" Liners provide a strong, durable material with weight and substance that is easy to place without worry of punctures or tears. Easy to join and seal on-the-job... highly resistant to weathering under exposure to the elements and most acids, alkalais, salts and micro-organisms. "MEADOWMAT" Asphalt-Plastic Liners are nominally one-eight inch thick and presently available in sheets 4' wide, lengths up to 15' and weigh three-quarter pounds per square foot.

IDEAL FOR LINING...

- WATER RESERVOIRS
- CHEMICAL TREATMENT PONDS
- SEWAGE LAGOONS
- GENERAL CONTROL OF LIQUIDS

Write for complete information

W. R. MEADOWS, INC.

16 KIMBALL ST. • ELGIN, ILLINOIS

▲† **North Dakota**—U. S. Eng., Ballistic Missile Constr. Office, 5651 W. 96th St., Los Angeles, Calif., ELECTRIC POWER CONNECTIONS for Minuteman Complex, $3,000,000 funds released.

▲ **Okla., Oklahoma City**—City, City Hall, $6,000,000 bond election Oct. 24, AIRPORTS.

▲ **Wash., Spokane**—City, City Hall, RUNWAY, BUILDINGS, MUNICIPAL AIRPORT, Geiger Field, $4,400,000. Constr. 1962. CD 3/14/60.

UNCLASSIFIED

▲ **N. Y., Flushing**—Gas Inc., 60 E. 42 St., New York, Zone 17, plans by Walter Dorwin Teague Assocs., 415 Madison Ave., New York, Zone 17, World's Fair Exhibit featuring 200 seat RESTAURANT for Gas Industry. $6,000,000. J. S. Hamel Engineering, Inc., 652 1 Ave., New York, Zone 16, mech. engr. Purdy & Henderson Assocs., Inc., 1 Madison Ave., New York, Zone 10, struct. engr. CD 11/23/60.

▲ **Ohio**—Cleveland Electric Iluminating Co., Illuminating Bldg., Cleveland, Zone 13, 54 mi. 345,000 volt TRANSMISSION LINE through Summit, Portage and Stark Counties, $5,426,000.

▲ **Okla., Oklahoma City**—City, Hall, $5,250,000 bond election Oct. 24, PARKS. CD 12/19/55.

▲† **Va., Norfolk**—Fifth Naval Dist., Naval Base, plans by Tippetts-Abbett-McCarthy-Stratton, 375 Park Ave., New York 22, N. Y. and Wiley & Wilson, 620 Court St., Lynchburg, Va., PIER 23 EXTENSION and UTILITIES, Destroyer Submarine Pier. $3,000,000.

▲† **Va. Yorktown**—Dist. P. Wks., Fifth Naval Dist., Room 307, Bldg. N-26, U. S. Naval Station, Norfolk Zone 11, plans by Praeger-Kavanaugh, 126 E 38th St., New York City 16, N. Y. and Marcellus Wright & Son, 100 E. Main, Richmond, PIER, Naval Weapons Station, $6,076,000 (no appropriation).

PUBLIC BUILDINGS

▲ **Ala., Huntsville**—City, City Hall, plans by William R. Dickson, Elks Bldg., CITY HALL, $3,000,000. CD 3/15/61.

▲ **Colo., Trinidad**—Trinidad Low Rental Housing Auth., PUBLIC HOUSING, $2,000,000.

▲ **D. C., Wash**—Office of Architect of Capitol, U. S. Capitol, Madison Memorial LIBRARY, with 3 story underground annex to Library of Congress, Independence Ave., 1st, 2nd and C Sts., SE, $39,000,000 (no appropriation).

▲ **Hawaii, Honolulu**—City and Honolulu Co., Punchbowl and King Sts., plans by Aldred Preis & Assocs., 1520 Kona St., 3rd Increment, Wahiawa INTERMEDIATE SCHOOL, Wahiawa. $1,011,000. Bids Oct. 1961.

▲ **Ill., Harrisburg**—Dpt. P. Wks. & Bdgs., State Office Bldg., Springfield, plans by Glen C. Frazier & Assocs., 104 W. University St., Urbana, HOSPITAL for MENTALLY RETARDED, Rte. 13, $5,612,000.

▲ **Mo., Springfield**—City, Purchasing Agent, 301 E. Central St., 4th Unit GENERATING ADDN., 60,000 kw capacity to James River Power Plant. Over $3,000,000. Burns & McDonnell Eng. Co., 4600 E. 63 Trafficway and P.O. Box 173, Kansas City 41, Mo. consult.-engr. CD 6/14/61.

▲ **N. J., Fort Lee**—Bd. Educ. Borough of Fort Lee, Whiteman St., referendum and project Oct. 9, HIGH SCHOOL ADDN., Lemoine Ave.; SCHOOL No. 4 ADDN., IMPRVS., Anderson Ave., Palisades, $2,000,000. CD 1/9/61.

▲ **N. Y., Mineola**—Nassau Co., Dpt. P. Wks., Old Courthouse, Franklin Ave., plans by Richard J. Heidelberger, 658 Fulton Ave., Hempstead, COUNTY HEALTH DPT. BLDG. near new County Courthouse. $4,500,000. CD 11/6/57.

▲ **Okla., Oklahoma City**—City, City Hall, $4,000,000 bond election Oct. 24, POLICE.

▲ **Okla., Oklahoma City**—City, City Hall, $3,000,000 bond election Oct. 24, FIRE DEPARTMENT.

▲ **Tex., Houston**—University of Houston, 3801 Cullen Blvd., masonry, steel CHEMISTRY between existing Science and Cullen Blvd. $3,500,000.

▲ **Va., Richmond**—Virginia State Dpt. Health, State Office Bldg., plans by Hayes, Seay, Mattern & Mattern, 1615 Franklin Rd. S.W., Roanoke, and Carneal & Johnston, assoc. archts., 602 West Cary, 14 story OFFICE. $4,000,000. CD 1/4/61.

COMMERCIAL BUILDINGS

▲ **Calif., Los Angeles**—Western Hotels, Inc., Olympic Hotel, Seattle, Wash., plans by Minoru Yamasaki & Assocs., 1025 E. Maple, Birmingham, Mich., HOTEL, Century City Development. $12,000,000. CD 1/10/58.

▲ **Calif., San Francisco**—Franklin Hospital, Bd. Dirs., 14 and Noe Sts., plans by Stone, Marraccini & Patterson, 536 Mission St., San Francisco, Calif., 550-bed HOSPITAL, MEDICAL OFFICE, 400-car parking, facilities and hospital house for patients' families, Third and Parnassus. $14,000,000. CD 1/6/58.

▲ **Conn., Hamden**—Tagmar Corp., 1621 State St., New Haven, DEPARTMENT STORE, Dixwell Ave. $2,500,000.

▲ **Hawaii, Honolulu**—Hilton Hotels, c/o Charles Pietsch, Alex. Young Bldg., plans by Killingsworth, Brady & Smith Assocs., 3833 Long Beach Rd., Long Beach, Calif., 300-room, low-rise (two or three floors), central section (six or eight stories) rambling structure luxury RESORT HOTEL, incl. swimming pool, 2,000 ft. beach, Kahala. $6,000,000-$7,000,000. CD 4/12/60.

▲ **Md., Suitland**—United Investors, 1411 K St. N.W., Wash., D. C., plans by Cohen, Haft & Assoc., 7961 Eastern Ave., Silver Spring, 404 unit Penn Garden APARTMENT, Silver Hill. $2,828,000.

▲ **Mass., Boston** — Boston University, Dpt. Bldgs. & Grounds, 755 Commonwealth Ave., plans by Van Storch & Buchavage, Waverly, Pa., 13 story WOMEN'S DORMITORY, Babcock St. $3,000,000. Bids November 1961.

▲ **Neb., Omaha**—Creighton University, 2500 California St., plans by Tinsley, Higgins, Lighter & Land, 526 Liberty Bldg., Des Moines, Iowa, Dr. C. C. and Mable L. Criss MEDICAL CENTER, $10,000,000. CD 3/27/56.

▲ **N. Y., New York**—Frouge Constr. Co., Inc., 141 North Ave., Bridgeport, Conn., plans by Emory Roth & Sons, 400 Park Ave., New York 22, N. Y., OFFICE, Madison Ave. and East 58 St. $6,000,000. (Type of project changed). CD 5/25/61.

▲ **N. Y., New York**—Security Operating Corp. and Wilson & Furman Co., 95 Broadway, Zone 6, plans by Ervin Palmer, 624 Madison Ave., Zone 22, 18 story APARTMENT, E. 64 to E. 65 Sts., east side of Second Ave. $2,660,000.

▲ **O., Cincinnati** — Chateau Grand, Inc., c/o Kenneth Hammond, Greenhills Center Bldg., Greenhills, plans by Loewenberg & Loewenberg, archt.-engrs., 120 S La Salle St., Chicago, Ill., 26 story APARTMENT, Hamilton Ave., $5,500,000; 26 story APARTMENT Hamilton Ave. near Belmont Ave., $5,500,000; 22 story APARTMENT, Hamilton Ave., $4,600,000.

▲ **Tex., San Antonio**—The Towers Corp., c/o Dr. Daniel Gevinson, 77 James St., Syracuse, N. Y. and c/o Walter Lehr, Jr., 1519 Alamo National Bldg., plans by John Hans Graham & Assocs., 2000 K St., NW, Wash., D. C. & Parker C. Folse, Jr., 3833 N.W. Hy., Dallas, 18 story, 300 unit APARTMENT, Navarro and St. Mary's Sts., $9,000,000; auto parking garage, $350,000; heated swimming pool, $175,000. Bernard J. Shaw, 37 Washington St., Morristown, N. J.; Frank T. Drought, 342 W. Woodlawn Ave., San Antonio, Tex., engrs. CD 5/26/61.

▲ **Va., Richmond**—J. Smith Ferebee, Virginia Bldg., Fifth and Main, 60 GARDEN-TYPE HOUSES, Country Club area. $2,000,000.

▲ **P. E. I., Charlottetown** — Fathers of Confederation Memorial Foundation, c/o Frank MacKinnon, 25 Fitzroy St., MEMORIAL CENTER incl. concert hall, art gallery, library, $5,000,000.

INDUSTRIAL BUILDINGS

▲ **Conn., New Haven**—Olin Brass, Div. Olin Mathieson Chemical Corp., 460 Park Ave., New York 22, N. Y., expansion and improvements, BRASS MILL, SWC Division St. and Winchester Ave., incl. equipment. Giffels & Rosetti, Marquette Bldg., Detroit, Mich., consult. engrs.

▲ **Ill., East Alton**—Olin Brass Div. Olin Mathieson Chemical Corp., 460 Park Ave., New York 22, N. Y., CASTING and ROLLING PLANT to produce brass coils, incl. equipment; 200,000 sq. ft. ALUMINUM-COVERED BLDG.; BRASS STRIP MILL IMPRVS., incl. equipment; MODERNIZING BRASS FABRICATING PLANT. United Engineers & Constructors, 1401 Arch St., Phila., Pa., consult. engrs.

▲ **Iowa, Clinton**—Hawkeye Chemical Co. (Swift & Co., 4115 S. Packers St. and Skelly Oil Co., 3639 S. Ashland St., both Chicago, Ill.) NITROGEN PRODUCTS PLANT, 1 mi. southwest of here, $10,000,000.

▲ **La., Geismar**—Naugatuck Chemical, Div. U. S. Rubber Co., 1230 Avenue of Americas, New York, N. Y., FLEXZONE CHEMICAL PLANT. $3,000,000.

▲ **R. I., Providence**—Glass Tile Industries, Inc., 725 Branch Ave., plans by Caproni Assoc., 132 Temple St., New Haven, Conn., INDUSTRIAL MFG. PLANT, Niantic Ave. in Huntington Expressway, Industrial Park in Mashapaug Pond Area. $1,000,000. Bids October 1961.

▲ **Wis., Green Bay**—Wisconsin Public Service Corp., 600 N. Adams St., Milwaukee, and Wisconsin Power & Light Co., 122 W. Washington St., Madison, Zone 1, 125,000 kw ELECTRIC GENERATING UNIT at Pulliam Plant. $20,000,000. To go ahead Spring 1962. CD 6/15/60.

N. S., **Port Hawkesbury**—Bestwall Gypsum Co., Ltd., 301-El Cerrito Plaza, El Cerrito, Calif., U.S.A. plans by Foundation of Canada Engineering Corp., Ltd., designers, 8 Spadina Rd., Toronto, Ont., and 1980 Sherbrooke St. W., Montreal, Que., PLANT. $2,000,000.

AMERICANS ABROAD

▲ **France, Boulogne-Sur-Mer**—American Potash & Chemical Corp., 3000 W. 6 St., Los Angeles, Calif., U.S.A., and Les Metaux Purs Pechiney-Outreau M.P.O., 10 Due du General Foy, Paris 8, France, PLANT to produce 3,000 tons per year electrolytic manganese metal, near here. $3,000,000. Inquiries are to be made to Les Metaux.

FOREIGN

▲ **Luxembourg**—Ministry P. Wks., LUXEMBOURG, PORT FACILITIES, Moselle Canal, near Grevenmacher. $6,000,000.

▲ **Luxembourg**—Ministry P. Wks., Luxembourg, WATER PURIFICATION SYS. and PIPELINE from Esch/sur/Sure to Luxembourg-Ville. $4,000,000-$5,000,000.

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BUILDINGS—BA

N. H., Gorham—BA 9/21—Boston Region, Mr. D. J. Wakefield, Real Estate Officer, Post Office Dpt., P.O. Box 585, Montpelier, Vt., build-lease approx. 2,369 sq. ft. POST OFFICE.

Mass., West Springfield—BA 9/15—Sullivan Paper Co., Inc., 61 Phelan Ave. (selected list bidders), PAPER MFG. PLANT ADDN. $200,000. Reinhardt Assoc., Inc., 1387 Main St., Springfield, Mass., archts. CD 8/10/61.

R. I., Providence—BA 9/20—State R. I. & Prov. Plants, Div. Purchase, State House, LIBRARY, Rhode Island College, North Providence Line, Proj. No. Bid No. 169. $848,000. Plans deposit $100. Lester J. Millman, 100 N. Main St., archt. Charles J. Dormer Assoc., 35 Westminster St., struct. engr.

Me., Orono — BA 9/21 — Orono School Dist., HIGH SCHOOL ADDN. $400,000. Alonzo J. Harriman, Inc., 292 Court St., Auburn, Me., archt. CD 6/8/61.

HEAVY CONSTRUCTION—LB & CA

MAINE—Maine Turnpike Auth., 17 Bishop St., Portland, ROAD,

Northeastern Paving Corp., 58 Main St., Westbrooke, Me., CA **$124,445** shoulder and pavt. resurf. Proj. 61-I, Arundel and Scarborough. BA 8/24 CD 8/17/61.

▲ **MASSACHUSETTS**—Commonwealth Mass., Dpt. P. Wks., 100 Nashua St., Boston, ROAD,

The Lane Constr. Corp., 965 East Main St., Meriden, Conn., CA **$2,498,269** est. $2,458,618. Section Rte. 91. Proj. 1-91-1(23)43 and U-378(1), Greenfield. BA 6/27. CA 8/8. CD 6/29/61, under LB.

▲ **CONNECTICUT**—State Hy. Comr., 170 Douglas St., Hartford, Bids opened 8/28, ROADS,

Conn.—**White Oak Excavators,** 7 West Main St., Plainville, Conn., LB **$3,357,351,** (7 bidders), Proj. 159-91, 8.413 lin. ft. grading, drainage, paving reinf.-con. on section Interstate Rte. 91, incl. 2 bridge structures vehicular culvert, Hartford and Wethersfield,

Conn.—**Oneglia and Gervasini Inc.,** Casson Ave., Torrington, Conn. LB **$535,381,** (6 bidders) Projs. 63-171, 63-166 and 159-92, 13.853 lin. ft. grading, drainage, paving, incl. 6 bridge structure on Interstate Rte. 91 and Rte. US 5, Hartford and Wethersfield, CD 8/19/61.

† **Webb & Knapp Marine Corp.,** 1500 Elm St., Stratford, Conn., LB **$97,950,** DREDGING Connecticut River Channel between Long Island Sound and Hartford, Hartford, Old Saybrook, etc., CIVENG-19-016-62-7, CONNECTICUT. U. S. Eng., 424 Trapelo Road, Waltham, Mass. BA 8/17/61. CD 7/28/61.

BUILDINGS—LB & CA

C. Profenno Co., 127 Marginal Way, Portland, Me., LB Approx. **$417,000** est. $400,000 MANUFACTURING PLANT, Canco Rd., PORTLAND, ME. Seltzer-Rydholm Inc., 250 Minot Ave., Auburn, Me. BA 8/24. CD 8/17/61.

R. C. Diocese of Portland, Chancery Office, 317 Congress St., Portland, Me., Owner Builds Approx. **$400,000** Notre Dame CHURCH, Water and Payne Sts., SPRINGVALE, ME. Frank W. Masiello Jr. & Assoc. Inc., 791 Main St., Worcester, Mass., archts.

Reznick Constr. Co. Inc., 303 Freeport St., Dorchester, Mass., CA Approx. **$117,000** (6 bidders) MANUFACTURING PLANT ADDN., DORCHESTER, MASS. Modern Die & Machine Co., 166 Pleasant St., Dorchester, Mass. BA 8/3 CD 8/2/61.

Fontaine Bros. Inc., 40 Hendricks St., Chicopee Falls, Mass., LB **$473,400** est. $500,000 (15 bidders) Proj. 667-1 State Aided HOUSING for the ELDERLY, John St., EAST LONGMEADOW, MASS. Town Housing Auth., Town Hall, East Longmeadow, Mass. BA 8/24 CD 8/2/61.

Commonwealth Centers Inc., Worcester Rd., Framingham, Mass., Owner Builds Approx. **$500,000** OFFICE, FRAMINGHAM, MASS. Aldo A. Minotti, 681 Main St., Waltham, Mass., archt. Computer Controls Corp. Inc., 983 Concord St., Framingham, Mass., lessee.

E. Turgeon Constr. Co. Inc., 42 Weybosset St., Providence, R. I., LB **$549,506** est. $600,000 (10 bidders) Ellen R. Hathaway ELEMENTARY SCHOOL, Union, Tremont Court and Newton Sts. NEW BEDFORD, MASS. City, Municipal Bldg., New Bedford, Mass. BA 8/23 CD 8/9/61.

Rocheford Constr. So. Inc., 227 W. Central St., Natick, Mass., CA **$639,395** PHA-Mass. 12-3, HOUSING for the ELDERLY, Mill St., WORCESTER, MASS. City Housing Auth., 69 Tacoma St., Worcester, Mass. BA 8/10 CD 8/16/61 under LB.

N. D. C. Constr. Co. Inc., Mercer Rd., Natick, Mass., LB **$527,000** est. $500,000 (12 bidders) Proj. 667-1 HOUSING for the ELDERLY, Grey Rd, YARMOUTH, MASS. Town Housing Auth., Town Hall, Yarmouth, Mass. Harris Assoc., 5 St. Dennis Dr., Westwood, Mass., mech. engrs. BA 8/23 CD 7/31/61.

Wiedl Constr. Co., Sky Edge Drive, Bethel, Conn., Owner Builds, **$418,000,** 19 HOUSES, Belair Drive, and Kings Wood Road, DANBURY, CONN.

J. J. Bennett, Inc., 205 N. Main St., Wallingford, Conn., Owner Builds, **$735,540,** 46 HOUSES, Woodland, Ward St. WALLINGFORD, CONN. CD 6/23/61.

Louis Sullivan, 25 Railroad Ave., West Haven, Conn., CA **$120,000,** 17,000 sq. ft. concrete block, 1 story WAREHOUSE, RAILROAD SIDING, Railroad Ave. Area, WEST HAVEN, CONN. West Haven Industrial Park, Inc., 25 Railroad Ave., West Haven, Conn. Caproni Assocs., 132 Temple St., New Haven, Conn., archts. CA 8/26/61. CD 2/17/59.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

N. Y., New York—BA 9/15—New York City Transit Auth., 370 Jay St., Brooklyn Zone 1, general constr., heating, and electric work ADDNL. STRUCTURES and alterations to existing Signal Tower at 239th Street Yard, Contr. YH, Bronx Boro. Plans deposit $4. CD 8/31/54.

Md., Baltimore—BA 9/20—City, Bureau Hys., 303 Municipal Bldg., Zone 2, Proj. 1630 STREET PAVING. Plans deposit $25. Geo. V. Walters, c/o owner, hy. engr. CD 11/17/60.

BUILDINGS—BA

▲ **N. Y., Brooklyn**—BA 9/14—Deputy Supt. Schools, Bureau Constr., 42-15 Crescent St., 4th Floor, Long Island City, Zone 1, general constr., plumbing and drainage, heating and ventilating and electrical work and lighting fixtures PUBLIC SCHOOL 309, Ralph, Madison and Monroe Sts., Spec. Nos. 204, 205, 206 and 207 of 1960, Brooklyn Boro. Extended date. $2,200,000. Plans deposit $25 general constr., $10 each mechanical trades. CD 8/8/61.

N. Y., New City—BA 9/18—Clarkstown Central School Dist. 1, Carnsmar Lane, SENIOR HIGH SCHOOL ADDN. $754,000. Perkins & Will, 55 Church St., White Plains, N. Y., archts. CD 3/30/61.

▲ **Md., College Park**—BA 9/19—Maryland University, Cumberland Hall men's DORMITORY and west DINING HALL WING. Plans deposit $100 each. Walton E. Maddon, 3510 Rhode Island Ave., Mt. Rainier, Md., archt., dormitory. Johannes & Murray, 855 Pershing Dr., Silver Spring, Md., arcts., west Dining Hall. CD 6/16/61.

† **N. J., Pedricktown**—BA 9/21—U. S. Eng., 111 East 16th St., New York, Zone 3, N. Y., MODIFICATIONS TO HEATING SYSTEM, Bldg. 440-Consolidated Mess Hall, Philadelphia Air Defense Site, U. S. Rte. 130, Oldmans Township, Proj. ENG-30-075-62-9. Under $25,000. CD 6/28/61, under LB.

▲ **N. J., Newark**—BA 9/26—Bd. Educ., 31 Green St., Miller Street SCHOOL ADDN. $1,250,000. Litwack & Shteir, 9 Clinton St., Newark, N. J., archt. CD 2/24/61.

▲ **N. Y., Liberty**—BA 10/4—Bd. Educ. Liberty Central School Dist. No. 1, general constr., heating and ventilating, plumbing, and electric work JUNIOR-SENIOR HIGH SCHOOL, Buckley St. over $2,000,000. White & Floyd, 484 Main St., Geneva, N. Y., archts. CD 12/1/60.

HEAVY CONSTRUCTION—LB & CA

▲ **Walsh Constr. Co.,** 711 Third Ave., New York 17, N. Y., LB **$2,110,969** Contr. 464, 2 lane, Cannonsville BRIDGE across Cannonsville Reservoir with superstructure supported by 6 piers and 2 abutments incl. short portions adjoining hy. approaches, Tompkins, Delaware Co., NEW YORK. Bd. Water Supply, 120 Wall St., New York 5, N. Y. BA 8/29. CD 7/31/61.

George W. Rogers Constr. Corp., 6 Church St., New York 6, N. Y., LB **$102,489,** (3 bidders), REPAIR FENDER SYS., Piers 1, 2 and 3 and BULKHEAD, Erie Basin Port Authority Piers, Port Authority Grain Terminal and Port Authority Columbia Street Pier, Constr. O & M 576, BROOKLYN, N. Y. Port of New York Auth., Rm. 900, 111 Eighth Ave., New York 11, N. Y. BA 8/28. CD 8/9/61.

J. D. Posillico Inc., 170 Fulton St., Farmingdale, N. Y., LB **$239,302** (3 bidders) Contr. D-950-T3, MEMORIAL OVERLOOK and ARBORETUM site, Nassau Co. Park at Salisbury, East Meadow, Town of Hempstead, MINEOLA, N. Y. Dpt. P. Wks. Nassau Co., Old County Courthouse, Franklin Ave., Mineola, N. Y. BA 8/29. CD 8/22/61.

MARYLAND—State Rds. Comn., 300 W. Preston St., Baltimore Zone 3, bids opened 8/22, ROAD,

H. T. Campbell Sons, Corp., Towson 4, Md., LB **$177,777,** (4 bidders), pavt. wid'n., curb, gutter and storm drain Rte. 45 near Towson. B 610-14-421, Baltimore Co. CD 8/17/61.

Contee Sand & Gravel Co., Laurel, Md., LB **$400,606** (2 bidders) Contr. 1094, STREET IMPRVTS. along Arcola Ave. and Kemp Mill Rd., Wheaton, ROCKVILLE, MD. Dir. P. Wks. Montgomery Co., County Office Bldg., Rockville, Md. BA 8/25. CD 8/15/61.

PENNSYLVANIA—Pa. Turnpike Comn., Box 531, Harrisburg, bids opened Aug. 24, ROAD,

Martin W. Wise, Inc., Sewickley, Pa., LB **$118,100,** (2 bidders), special pavement repair program between mileposts 9.9 and 67.4, Lawrence, Beaver, Butler, Allegheney, and Westmoreland Counties. CD 8/16/61.

General Railway Signal Co., 801 West Ave., Rochester, N. Y., LB **$711,700,** (6 bidders), conversion of FIRE ALARM SYS. and AMBULANCE COMMUNICATION, BALTIMORE, MD. City, Bureau Mech. & Elec. Services, Municipal Bldg., Baltimore 2, Md. BA 8/23. CD 7/27/61.

John F. Casey Co., P. O. Box 1888, Pittsburgh, Pa., LB **$893,343,** (2 bidders) ROADWAY and STRUCTURES, south approach to new West Highway Bridge over Potomac River, 14th St., WASH., D. C. D. C. Govt. Dpt. Hys., 499 Pennsylvania Ave., NW, Wash., D. C. BA 8/28/61. CD 8/25/61.

BUILDINGS—LB & CA

J. G. A. Constr. Corp., Box 311, Eastwood Sta., Syracuse, N. Y., LB **$644,400,** ELEMENTARY SCHOOL, CAMILLUS, N. Y. Bd. Educ. West Genesee Central School Sys., 5201 W. Genesee St., Camillus, N. Y. BA 8/15. CD 7/24/61.

▲ **Irving Berger & Assocs.,** 3000 Hempstead Turnpike, Levittown, N. J., Owner Builds, **$5,000,000** Commack Plaza SHOPPING CENTER incl. 250,000 S. Klein's Department Store, Jericho Turnpike and Veterans Memorial Hy., COMMACK, N. Y. A. H. Salkowitz, 87-25 Homelawn St., Jamaica 32, N. Y., archt.

▲ **Alvin Benjamin & Assocs.,** 355 Lena Ave., Freeport, N. Y., Owner Builds, **$1,000,000,** five-2 story 78 unit East Meadow Garden APARTMENTS, North Newbridge Rd. at Wantagh State Parkway, LEVITTON, N. Y. Siegmund Spiegel, 2066 Front St., East Meadow, N. Y., archt. CD 1/31/61.

▲ **Barr & Barr, Inc.,** 500 5 Ave., New York 17, N. Y., CA **$3,500,000** CENTRAL SERVICE BLDG., NEW YORK, N. Y. Columbia-Presbyterian Medical Center, Broadway and 68 St., New York 23, N. Y. CA July. CD 2/7/61.

Parks-Seidman, Inc., 89-64 163 St., Jamaica 32, N. Y., LB **$499,000,** (7 bidders), NURSES' HOME Bldg. 13, incl. service connections, State Hospital, Bronx Boro, NEW YORK, N. Y. State Dpt. P. Wks., State Office Bldg., Albany, N. Y. BA 8/23. CD 4/30/57.

Polera Building Corp., 100 Spier Rd., Scarsdale, N. Y., CA **$607,000,** GRADE SCHOOL, Laurel Rd., NEW CITY, N. Y. Clarkstown Central School Dist. 1, Carnsmar Lane, New City, N. Y. BA 7/27. CD 8/8/61, under LB.

▲ **Jonwal Constr. Co.,** 1565 Franklin Ave., Mineola, N. Y., CA **$1,012,648** ELEMENTARY SCHOOL south of Merrick Rd., SEAFORD, N. Y. Union Free School Dist., Seaford, N. Y. BA 8/22. CA 8/28. CD 8/2/61.

E. J. Smith Constr. Co., Inc., 8410 Ramsey Rd., Silver Spring, Md., LB **$464,097,** (12 bidders), Cresthaven ELEMENTARY SCHOOL, Hillandale, ROCKVILLE, MD. Montgomery Co. Bd. Educ., Rockville, Md. Deigert & Yerkes, 3205 N St. N.W., Wash., D. C., archts. BA 8/24. CD 8/9/61.

▲ **J. Roland Dashiell & Sons Co.,** Salisbury, Md., CA **$1,254,370,** James M. Bennett JUNIOR HIGH SCHOOL, SALISBURY, MD. Wicomico Bd. Educ., Salisbury. CA 8/23. CD 3/30/31.

SOUTH

HEAVY CONSTRUCTION—BA

▲ **Ky., Okalona**—BA 9/26—Okalona Sewer Constr. Dist., SANITARY SEWAGE TREATMENT PLANT and COLLECTION SYS. $1,853,000. Alfred Lefeber & Assoc., 2933 Woodburn St., Cincinnati, O., engrs. CD 12/7/59.

† **Louisiana**—BA 9/26—U. S. Eng., foot of Prytania St., New Orleans, WABPL, Item W-96-L, Charenton-Intracoastal Canal Levee, LEVEE RESTORATION, Town of Berwick, St. Mary Parish. CIVENG 16-047-62-23. $50,000. Plans deposit $1.

▲ **Fla., Fort Myers**—BA 10/2—Bd. Comrs. Lee Co., Courthouse, approx. 3 mi. CAUSEWAYS and BRIDGE across San Carlos Bay from Punta Rassa (Mainland) to Sanibel Island, incl. dredged fill for roadway embankment, bit. paving, conc. trestles, dbl. leaf bascule life bridge, etc., Carribean Engrs. & R. H. Matts & Assocs., 1520 Jackson St., Fort Myers, Fla. engrs.-archts. Ford, Beacon & Davis, 2 Broadway, New York, N. Y. consult. engrs. CD 7/27/61.

BUILDINGS—BA

Fla., Sanford—BA 9/14—Bd. Public Instruction, Seminole County Courthouse, Bear Lake Elementary SCHOOL and JUNIOR HIGH SCHOOL, South Seminole County, $850,000. Burton & Chapman, Box 938, Sanford, Fla., archts.

Ga., Americus—BA 9/14—Bd. Regents, University System of Georgia, 244 Washington St., SW, Atlanta, LIBRARY-CLASSROOM, Georgia Southwestern College, $500,000. Plans deposit $50. Hugh W. Gaston, 1107 4th Ave., Albany, Ga., archt. CD 7/2/52.

Ky., Louisville—BA 9/19—Independence Life & Accident Insurance Co., Starks Bldg., 4 and Walnut Sts., Zone 2, OFFICE, 2 and Walnut Sts. Over $500,000. Nevin Morgan, Starks Bldg., Louisville 2, Ky., archt. CD 7/10/61.

N. C., Charlotte—BA 9/19—General Motors Corp., 485 W. Milwaukee Ave., Detroit, Mich., WAREHOUSE-OFFICE, over $500,000.

N. C., Guilford College—BA 9/22—Guilford College Bd. Trustees, 53,000 sq. ft. MENS DORMITORY, $750,000. Plans deposit $50. McMinn, Norfleet & Wicker, 2828 Lawndale Dr., Greensboro, archts. CD 5/2/61.

▲ **W. Va., Charleston**—BA 9/26—Kanawha Co., Bd. Educ., Zone 1, NITRO JUNIOR HIGH SCHOL, Nitro, $1,000,000. Hancock & Moses, Security Bldg., Charleston Zone 1, archts. CD 4/7/59.

N. C., Guilford College—BA 9/29—Guilford College Bd. Trustees, 35,000 sq. ft. WOMENS DORMITORY, $500,000. Plans deposit $50. McMinn, Norfleet & Wicker 2828 Lawndale Dr., Greensboro, archts. CD 5/2/61.

HEAVY CONSTRUCTION—LB & CA

▲ **VIRGINIA**—Dpt. Hys., 1221 East Broad St., Richmond, ROADS,

Williams Paving Co. Inc., 1269 East Princess Ann Rd., Norfolk, Va., CA **$1,273,338**, two-lane paving 4.061 mi. City line to west Int. Rte. 258 on Rte. 134, Proj. 7134-114-071, C501, B601, City of Hampton. BA 8/23/61. CD 8/29/61 under LB.

▲ **R. N. Hewitt Corp., Kenneth M. Dunn and H. & B. Inc.**, 4812 Floyd St., South Charleston, W. Va., LB **$467,483** (4 bidders) Contract 17, STORM SEWER, SOUTH CHARLESTON, W. VA. Sanitary Bd., City of South Charleston, City Hall, South Charleston, W. Va. BA 8/24/61. CD 8/11/61.
R. N. Hewitt Corp., 4812 Floyd St., South Charleston, W. Va., LB **$114,763** (1 bidder) Contract 19 sanitary sewer (South Charleston, W. Va.).
Berco Co., Livonia, Mich., LB **$954,890**, (3 bidders) Contract 18, STORM SEWER, (South Charleston W. Va.).
Roane Constr. Co., 2617 Virginia Ave. SE, Charleston, W. Va., LB **$114,472**, (1 bidder), Contract 20, SANITARY SEWER, (South Charleston, W. Va.). BA 8/24/61. CD 8/11/61.

† **Charles C. Steward Machine Co.**, 3911 13th Ave., N. Birmingham, Ala. CA **$98,536**, SPILLWAY RADICAL GATE HOISTS, Melton Hill Dam, TENNESSEE, Tennessee Valley Authority, New Sprankles Bldg., Knoxville, Tenn.

Donahoo-Rast Contr. Co., 1013 3rd Ave., S. Birmingham, Ala. and **Sullivan, Long & Hagerty**, 801 5th Ave., N. Birmingham, Ala. LB **$459,107**, SANITARY SEWER LINES, Glennell Farms, Buena Vista Park, Pea Ridge, Ridgecrest Country Club Gardens, etc. HUNTSVILLE, ALA., City, City Hall, Huntsville, Ala. BA 8/22/61. CD 8/16/61.

BUILDINGS—LB & CA

A. G. Higginbottom Co., Charleston National Bank Bldg., Charleston, W. Va., CA **$760,579**, MENS and WOMENS DORMITORIES, CHARLESTON, W. VA. Morris Harvey College, 2300 MacCorkle Ave., Charleston, W. Va. BA 8/8/61. CD 7/17/61.

G. L. Wilson Bldg. Co., 149 Waters St., Statesville, N. C., LB **$658,202**, SANCTUARY-EDUCATIONAL BLDG., CHERRYVILLE, N. C. St. John's Lutheran Church, corner Church St. and N. Dixie St., Cherryville, N. C. BA 8/19/61. CD 8/2/61.

A. J. Hewett, 202½ W. Market St., Greensboro, N. C., CA **$511,446**, SANCTUARY-EDUCATIONAL bldg. ADDN., GREENSBORO, N. C. West Market Street Methodist Church, 302 W. Market St., Greensboro, N. C. BA 6/30/61. CD 7/19/61, under LB.

Rives E. Worrell Constr. Co., P.O. Box 501, Savannah, Ga., CA Est. **$900,000**, RAILROAD PASSENGER STATION, SAVANNAH, GA. Seaboard Airline Railroad Co., and Atlantic Coastline Railroad Co., 3600 W. Broad St., Richmond, Va. BA 8/23/61. CD 7/19/61.

▲† **M. W. Kellogg Co.**, 711 3rd Ave., New York, N. Y. CA **$1,700,000**, piping systems and appurtenances, Widows Creek Steam Plant, ALABAMA, Tennessee Valley Auth., New Sprankles Bldg., Knoxville, Ala. CD 10/7/57.

G. W. Hallmark & Son, 3212 6th Ave., S., Birmingham, Ala., CA **$608,971**, STUDENT ACTIVITY BLDG., BIRMINGHAM, ALA. Birmingham-Southern College, 800 8th Ave., W., Birmingham, Ala. BA 8/9/61. CD 8/18/61, under LB.

Andrew & Dawson, P.O. Box 1301, Montgomery, Ala., LB **$605,307**, Men's DORMITORY-DINING HALL, LIVINGSTON, ALA. Livingston State College, Livingston, Ala. Tom B. Kirkland, 28 S. Hull St., Montgomery, Ala., archt. CD 6/16/61.

E. H. Cropp, 1919 Duvall St., Mobile, Ala., LB **$899,560**, Blount HIGH SCHOOL ADDN., MOBILE, ALA. Mobile Co. Bd. Educ., 504 Government St., Mobile, Ala. BA 8/22/61. CD 7/24/61.

Hal Perry, 90 Main St., Benton, Ky., LB **$919,000**, 326 men's DORMITORY No. 3, Murray State College, MURRAY, KY. Commonwealth Ky., Div. Purchases, Frankfort, Ky. BA 8/25. CD 8/4/61;
Charles E. Story Constr. Co., Box 147, Benton, Ky., LB **$668,000**, Bldg. No. 4, DINING FACILITIES, Murray State College, (Murray, Ky.).

† **Mississippi Valley Structural Steel Co.**, 2408 Vance Ave., Chattanooga, Tenn., CA **$296,742**, STRUCTURAL STEEL, Paradise Steam Plant, PARADISE, KY. Tennessee Valley Auth., New Sprankles Bldg., Knoxville, Tenn. CD 3/25/60;
H. H. Robertson Co., 2015 Highland Ave., Birmingham, Ala., CA **$152,642** STEEL DECKING and accessories; CA **$468,394** METAL SIDING and misc. appurtenant items, Paradise Steam Plant (Paradise, Ky.).

M. K. Constr. Co., 1924 Piedmont Rd., N. E., Atlanta, Ga., CA **$600,000**, BOWLING CENTER, CHATTANOOGA, TENN. C. V. Brown & Bros., Realty Co., 118 E. 8th St., Chattanooga, Tenn.

Fred Young Builders, 2287 Frisco Ave., Memphis, Tenn., CA **$410,000**, CHURCH REMODELING, and children's educational bldg. and fellowship hall, MEMPHIS, TENN. St. Luke's Methodist Church, 480 Highland St., Memphis, Tenn. Dean E. Hill & Associates, 3181 Poplar Ave., Memphis, Tenn., archts.

▲ **Southern Builders, Inc.**, Bosley Springs Corp., 1717 W. End Ave., Nashville, Tenn., Owner builds **$2,000,000**, 11 story, 110 unit APARTMENT, White Bridge Road, NASHVILLE, TENN. Swennsen & Knott, 1719 W. End Bldg., Nashville, Tenn., archts.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **Ill., Chicago**—BA 9/15—Dpt. Purchases, City Hall, Zone 2, 17 span ELEVATED HIGHWAY STRUCTURE, 15 steel stringer spans, South Route Expressway, Proj. S 2525.3-1-H. $3,059,000. CD 12/23/58.

Ill., East St. Louis—BA 9/28—East Side Levee & Sanitary Dist., Bd. Trustees, 2642 McCasland Ave., 10,000 lin. ft. 18 and 20 in. Lansdowne SANITARY TRUNK SEWER EXTENSION, Proj. 11-G. $250,000. CD 5/2/58.

Wis., Milwaukee—BA 9/19—Metropolitan Sewerage Comm. of the County of Milwaukee, P. O. Box 2079, 5,100 ft. 144 in. mono. concrete SEWER, South Pennsylvania Ave. from East Drexel Ave. to East Rawson Ave., Oak Creek, Proj. 181. Plans deposit $10. Alvord, Burdick & Howson, 20 North Wacker Dr., Chicago, Ill., consult. engrs. Raymond D. Leary, chief engr. CD 3/9/61.

BUILDINGS—BA

▲ **Ill., Chicago**—BA 9/12—Michael Reese Hospital, 2929 S. Ellis Ave., 165 bed BAUMGARDEN PAVILION, 6 story, 123 bed DREYFUS MEMORIAL. $5,750,000. Loebl Schlossman & Bennett, 333 N. Michigan Ave., Chicago, Zone 1, archts. CD 3/7/61.

Wis., Black River Falls—BA 9/19—Bd. Educ., Black River Falls, SENIOR HIGH SCHOOL. $925,000. Ellerbe & Co., 333 Sibley St., St. Paul, Minn., archts. CD 12/20/60.

▲ **Wis., Milwaukee**—BA 9/21—School Bd., 5225 West Vliet St., Samuel Morse JUNIOR HIGH SCHOOL. $2,250,000. Plans deposit $125. Grassold-Johnson & Assocs., 734 North Jefferson St., Milwaukee, Wis., archts. CD 11/11/60; Clara Barton SCHOOL. $500,000. Plans deposit $90. Ebling, Plunkett & Heymar, 1220 North Milwaukee St., Milwaukee, Wis., archts. CD 4/8/57.

Ill., Chicago—BA 9/25—Bd. Educ., 228 N. LaSalle St., Zone 1, SCHOOL, Kenton and Maypole Aves., $800,000. Bradley & Bradley, 924 Main St., Rockford, archts. CD 2/2/61.

▲ **Ill., DeKalb**—BA 9/28—Northern Illinois University, COLLEGE LIBRARY ADDN. $1,000,000. Gilbert A. Johnson American National Bank Bldg., Rockford, archt. CD 6/6/61.

O., Grafton—BA 10/3—Midview Bd. Educ., ELEMENTARY SCHOOL, HIGH SCHOOL ADDN. $810,000. Mellenbrook, Foley & Scott, 20 Beech St., Berea, archts. CD 11/14/60.

HEAVY CONSTRUCTION—LB & CA

Dyer Constr. Co., 1716 Sheffield Ave., Dyer, Ind., LB **$446,017**, SANITARY SEWERS, along Sheffield Ave., 124th to 137th Sts., HAMMOND, IND. Hammond Sanitary Dist., 5143 Columbia Ave., Hammond, Ind. Consoer, Townsend & Assocs., 360 E. Grand Ave., Chicago, 11, Ill., engrs. BA 8/15/61. CD 2/26/61.

Arcole Midwest Corp., 3225 Main St., Skokie, Ill., LB **$448,493** est. $283,000 (4 bidders) PAVING Central Park Ave., North to Belmont Sts., Proj. 2325-cs, CHICAGO, ILL. Dpt. Purchases, City Hall, Chicago 2, Ill., BA 8/24/61. CD 10/23/59.

G. S. Chastain Co., 1500 E. Garfield St., Decatur, Ill., LB **$108,466**, SANITARY SEWERS, North and Northwest Sections, incl. Amos Sewer Dist., SPRINGFIELD, ILL. Springfield Sanitary Dist., Rte. 5, Springfield, Ill. BA 9/8/61. CD 4/13/61.

Thomsen Abbott Constr. Co., 211 South Central Ave., Marshfield, Wis., LB **$459,739**, WATER TREATMENT PLANT, WAUSAU, WIS. City, City Hall, Wausau, Wis. BA 8/17/61. CD 7/20/61;
E. W. Bacharach Inc., 4625 Roanoke Parkway, Kansas City, Mo., LB **$485,125**, MECHANICAL work, water treatment plant, (Wausau, Wis.).

Ray D. Baker Co., 19200 W. 8 Mile Rd., Detroit 41, Mich., CA **$712,235**, Sects. A, B & F, INTERNAL COLLECTOR SEWERS, BLOOMFIELD HILLS, MICH. City, 45 E. Long Lake Rd., Bloomfield Hills, Mich. BA 8/11. CA 8/23. CD 8/23/61, under LB.

BUILDINGS—LB & CA

▲ **E. I. duPont de Nemours & Co., Inc.**, duPont & Nemours Bldg., Wilmington, 98 De., Owner Builds (2 yr. program) METHANOL PLANT, HURON, O. CD 4/7/61

▲ **A. E. Asher Inc.**, 30 N. Dearborn St., Chicago 2, Ill., CA **$1,046,800**, DORMITORY, House of Correction, Proj. 80.75-61-38, CHICAGO, ILL. Dpt. Purchases, City Hall, Chicago 2, Ill. BA 7/17/61. CA 8/25/61. CD 7/26/61, under LB.

Great Western Contracting Co., 33 N. Wabash Ave., Chicago 2, Ill., CA **$2,500,000**, 5 story, north wing HOSPITAL ADDN., CHICAGO, ILL. St. Elizabeth's Hospital, 1431 N. Claremont Ave., Chicago, Ill. Donald Psykacek, 55 E. Washington St., Chicago 2, Ill., archt.

▲ **M. A. Lombard & Sons Co.**, 1215 W. 103rd St., Chicago, Ill., CA **$2,974,974**, 150 bed HOSPITAL ADDN., ALTERATIONS, HINSDALE, ILL. Hinsdale Sanitarium & Hospital, 120 N. Oak St., Hinsdale, Ill. CD 8/22/61, under LB.

Lindblad Constr. Co., 150 Youngstown St., Joliet, Ill., CA **$805,225**, Washington JUNIOR HIGH SCHOOL ADDNS., JOLIET, ILL. Joliet Public Schools, 153 Ottawa St., Krugel, Healy & Moore, 4 E. Clinton St., Joliet, Ill., archts. BA 7/6/61. CD 7/24/61, under LB.

Joseph J. Duffy Co., 4994 N. Elston Ave., Chicago, Ill., CA **$326,584**, LABORATORY BLDGS. NOS. 22 and 23 ADDN., ALTERATIONS, Argonne National Laboratory, LEMONT, ILL. U. S. Atomic Energy Comn., 9800 S. Cass Ave., Argonne, Ill.

▲ **O. Frank Heinz**, 2510 S.W. Adams St., Peoria, Ill., CA **$2,149,100**, MANUEL HIGH SCHOOL, PEORIA, ILL. Peoria Public High Schools, 3202 Wisconsin Ave., Peoria, Ill. BA 8/1/61. CA 8/17/61. CD 8/22/61, under LB.

Young & Novak Inc., 7635 West Blue Mound Rd., Milwaukee, Wis., CA est. **$512,000**, PROFESSIONAL ARTS bldg., MILWAUKEE, WIS. Fred Novak, 7635 West Blue Mound Rd., Milwaukee, Wis.

Nelson & Co. Inc., 1550 Yout St., Racine, Wis., LB **$565,968**, (5 bidders), general contract, Horlick HIGH SCHOOL ADDNS., ALTERATIONS, RACINE, WIS. Bd. Educ., 730 Washington Ave., Racine, Wis. Warren Holmes Co., 820 North Washington St., Lansing, Mich., archts.

L. G. Arnold Inc., 201½ North Dewey St., Eau Claire, Wis., CA **$629,925**, DORMITORY, STEVENS POINT, WIS. Wisconsin State Colleges Bldg. Corp., Madison, Wis. BA 8/10/61. CD 7/19/61.

▲ **Edward Rose Realty Co. & Assoc.**, 14900 Linwood Ave., Detroit 38, Mich., Owner Builds, **$1,400,000**, sixteen 1 story, brick, steel, concrete, stone APARTMENTS, Orleans and Chateaufort Sts., DETROIT, MICH.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

Mo., Williamsville—BA 9/12—City, City Hall, DEEP WELL for WW sys. C. R. Trotter, Dexter, Mo., engr.

† **Wyoming**—BA 9/12—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., Missouri River Basin Proj., EARTHWORK, STRUCTURES for 5.44 mi. open and closed drains near Worland, Proj. 617C-67. CD 5/25/44.

† **Wyoming**—BA 9/12—Bureau P. Rds., Denver Federal Bldg., Denver, Colo., ROAD, grading, bridges, bit. stab. base 0.976 mi. hy., Jackson Lake Rd. and Teton Park Rd., Proj. 2-B (Por.) and 3-B (Por.) Grand Teton National Park. CD 8/14/58, under Unclassified.

Tex., Irving—BA 9/13—City, City Hall, 2 m.g. elevated steel WATER STORAGE TANK, $125,000. Forrest & Cotton, Inc., 600 Vaughn Bldg., Dallas, engr. CD 6/6/56.

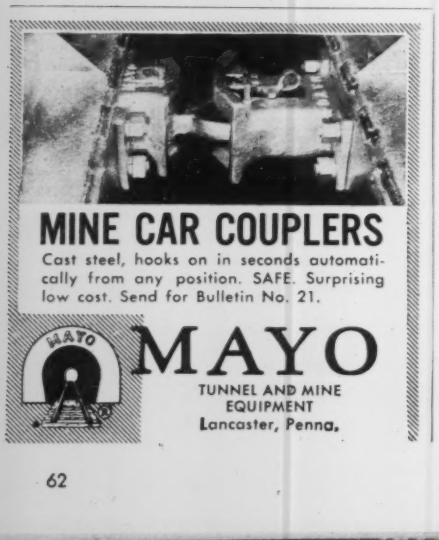
† **Arkansas**—BA About 9/14—U. S. Eng., P.O. Box 867, Little Rock, bit. surf. ACCESS ROADS, Arkansas River Watershed, Schedules A and B, Blue Mountain Reservoir, Petit Jean River, and Schedules C, D, and E, Nimrod Reservoir, Fourche La Fave River, CIVENG-03-050-62-34, $50,000. Bids 8/10 rejected. CD 7/14/61.

Minn., Brooklyn Center—BA 9/14—Village, Village Hall, SANITARY SEWER IMPRV. No. 1961-47; STORM SEWER IMPRV. No. 1961-48, 5,970 lin. ft. 8 in. vitrified clay pipe 24 manholes, 1 lift station. $148,410.

S. D., Vermillion—BA 9/18—City, City Hall, SWIMMING POOL IMPRVT. Harold Hoskins & Associates, 1630 Que. St., Lincoln, Neb., engrs. CD 5/18/61, under LB.

† **Texas**—**BA 9/20**—U. S. Eng., P.O. Box 1600, Fort Worth, DREDGING, Texas City Channel and Turning Basin, ENG-41-243-62-10, $300,000. CD 8/25/61.

Minn., Pine City—BA 9/25—Village, Village Hall, SEWAGE STABILIZATION POND, sewage force main, sewage lift station and modifications to existing plant. $88,000. Ellerbe & Co., 333 Sibley St., St Paul, Minn., engrs.


MINE CAR COUPLERS
Cast steel, hooks on in seconds automatically from any position. SAFE. Surprising low cost. Send for Bulletin No. 21.
MAYO
TUNNEL AND MINE EQUIPMENT
Lancaster, Penna.

Architects: Walter Hook Associates; *Structural Engineers:* R. V. Wasdell and I. R. Armstrong; *General Contractors:* Southeastern Construction Co., Goode Construction Corp., F. N. Thompson, Inc., and McDevitt & Street Co. Structural steel was fabricated by Southern Engineering Co., Charlotte, N.C., and Bristol Steel and Iron Works, Bristol, Va. Bristol erected all steel.

all columns outside clear space inside

When completed, the North Carolina National Bank Building in Charlotte will be the largest and tallest all-welded, steel-framed building in the Southeast.

The building will have 16 floors plus a 2-story penthouse. The tower will be in two sections: a main tower for bank personnel and leased offices; a service tower for elevators and stairs.

No interior columns

You can see clear through the Main Tower! 36-in. wide-flange sections span the entire 55-ft width. Not a single column to get in the way of floor arrangements. Partitions can be placed anywhere . . . office space can be arranged as the tenants desire.

Largest columns in the Carolinas

You can also see the largest and heaviest columns ever used in an office building in the Carolinas. The column sections, rolled specially by Bethlehem, are 36¾-in. deep and weigh 369.3 lb per lineal foot. That's 69.3 lb more per foot than the heaviest regular 36-in. wide-flange section.

All-welded steelwork

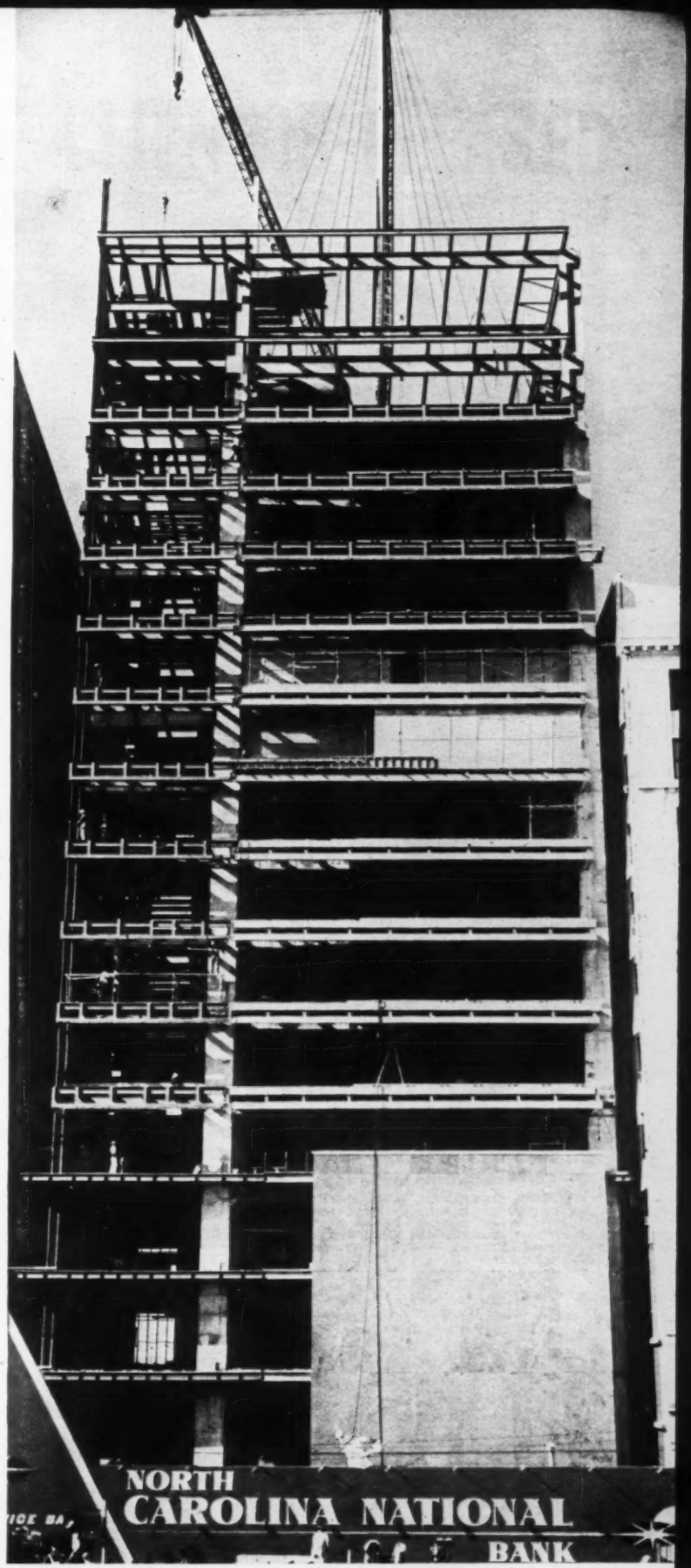
Using these heavy sections as the column core, the columns are welded, built-up members with a 20-in. x 2¾-in. cover plate welded flat on one flange, and two 30-in. x 2¾-in. plates welded perpendicularly to the edges of the other flange. The finished, fabricated columns weigh 1,100 lb per lineal foot.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
Export Sales: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

Steel — For strength . . . economy . . . versatility

BETHLEHEM STEEL



ALL-WELDED. *150,000 lb of welding rods were used in shop fabricating, and 35,000 lb were used in erecting 3,800 tons of Bethlehem structural steel.*

† Colorado—BA 9/28—Bureau Reclamation, Dpt. Interior, Collbran, relocation, modification structures, Highline Canal and Orchard Mesa Canal, near Palisade, in Mesa Co., Grand Valley Proj., DC-5657. CD 9/14/44.

† Texas—BA About 9/28—U. S. Eng., P.O. Box 1600, Fort Worth, COAT AND CROWN WIDENING, Addicks Project Office, Addicks and Barker Dams, ENG-41-243-62-12, $25,000.

▲† Oklahoma—BA About 10/3—U. S. Eng., Box 61, Tulsa, RELOCATING STATE HY. 9-Alt. grading, bridge, Eufaula Reservoir, Canadian River, CIVENG-34-066-62-17, $1,000,000. Plans deposit $10. CD 9/30/60.

† N. M., Roswell—BA About 10/12—U. S. Eng., P.O. Box 1538, Albuquerque, COMPRESSED AIR SYSTEM, S Environmental Air Conditioning, paving and blast deflectors, Walker Air Force Base, Chaves County, ENG-29-005-62-16, $25,000. CD 1/29/60.

▲† Oklahoma—BA About 10/24—U. S. Eng., Box 61, Tulsa, POWERHOUSE, Eufaula Dam, Canadian River, CIVENG-34-066-62-15, $5,500,000. Plans deposit $10. CD 9/30/60.

BUILDINGS—BA

Mo., Maryville — BA 9/19—Bd. Regents Northwest Missouri State College, second addn. to STUDENT SERVICE BLDG. and DORMITORY PARKING AREAS; HEALTH and PHYSICAL EDUCATION BLDG. ADDN. Emil O. Bayerl, 20 W. 9 St., Kansas City 5, Mo., archt.

Minn., Glen Lake—BA 9/21—State Dpt. Admin., 19 State Capitol, St. Paul, remodel Glen Lake SANITORIUM and Oak Terrace NURSING HOME. $400,000. Plans deposit $50. Hills Gilbertson & Fisher, 6009 Wayzata Blvd., Minneapolis 16, Minn., archts.

Mo., Wentzville — BA 9/26—Bd. Educ. Reorganized School Dist. R-IV, HIGH SCHOOL, US Hy. 40 (Interstate 70) west of intersection with old Hy. 40. $400,000. Plans deposit $50. P. John Hoener & Assocs., 4227 Watson Rd., St. Louis 9, Mo., archts. CD 6/15/61.

▲ Colo., Denver—BA 9/29—St. Joseph's Hospital 1818 Humboldt, Denver, 12 STORY 280,000 sq. ft. HOSPITAL ADDN., $7,500,000. Monroe, Irwin & Dunham, 1250 Wadsworth, Denver, Colo., archts. Extended date. CD 8/17/61.

HEAVY CONSTRUCTION—LB & CA

Alex & Buchan, Perry, Iowa, CA $90,672, STORM and SANITARY SEWERS, AMES, IOWA. City, City Hall, Ames, Iowa. CA 8/15/61.

Abell-Howe Co., 1114 Shaver Rd., NE, Cedar Rapids, Iowa, CA $83,975, WATER MAIN, across Cedar River, CEDAR RAPIDS, IOWA. City, City Hall, Cedar Rapids, Iowa. CA 8/17/61.

Brezina Constr. Co., 709 Steele St., Rapid City, S. D., CA $198,993, 69 KV TRANSMISSION LINE, LeMARS, IOWA. City, City Hall, LeMars, Iowa. CA 8/15/61.

Booth & Olson, Inc., 529 Insurance Exchange Bldg., Sioux City, Iowa, LB $102,769, CONCRETE PAVEMENT, RED OAK, IOWA. City, City Hall, Red Oak, Iowa. CA 8/21/61.

SOUTH DAKOTA—State Dpt. of Hys., Hy. Bldg., Pierre, ROAD,
rejected bids Aug. 15, 19.350 mi. roadside imprvt. on I 90; I 90-1(12)44, I 90-2(18)54, I 190-2(19)59, Meade and Pennington Counties. CD 7/12/61.

SOUTH DAKOTA—State Dpt. of Hys., Hy. Bldg., Pierre, ROAD,

Wilbur Christenson Constr. Co., P.O. Box 490, Rapid City, S. D., CA $522,031, grading, surface gravel, 13.810 mi. SD 79 Fairburn, north, F 019-3; F 019-2 and F 022-1, Pennington and Custer Counties, BA 8/15/61. CD 8/21/61, under LB.

Office of City Clerk, City Hall, Crete, Neb., received no bids August 25, constr. in SANITARY SEWER DIST. No. 7, CRETE, NEB. CD 8/15/61.

TEXAS—State Hy. Dpt., Austin, ROADS,
cancelled bids to have been opened Sept. 12, grading, strs., base and surf., 10.628 mi., Hy. ST. 204, S 173(5), Cherokee Co., CD 8/11/61; grading, and strs., 5.313 mi., Hy. IH 30, I 30-2(28), Franklin Co., CD 8/23/61.

TEXAS—State Hy. Comn., Austin, ROAD,
cancelled bids to have been opened Sept. 13, grading, strs., base and surf., 6.148 mi., Hy. FM 834, C 1146-1-4, Liberty Co. CD 8/23/61.

▲ TEXAS—State Hy. Comn., Austin, ROAD,
Flenniken Constr. Co., Inc., Box 6857, Dallas, Tex., CA $1,207,794, conc. pvt. soil cmt., base and A.C. pvt., 6.064 mi., Hy. IH 20, I 20-6(19), Smith Co., BA 8/16/61. CD 8/21/61, under LB.

▲ TEXAS—State Hy. Comn., Austin, ROADS,
Tex.—Collins Constr. Co. of Texas, P.O. Box 1192, Austin, Tex., CA $905,282, grading, strs., fl. base and A.C. pvt., 7.231 mi., Hy. St. 7 and 320, S 22(3) and S 2138(2), Falls Co.;
Tex.—Cecil Ruby Co., Inc., 907 Rown Bldg., Austin, Tex., CA $1,645,401, grading, strs., base and A.C. pvt., 3.511 mi., Hy. IH 410, I 410-4(44), Bexar Co.;
Tex.—Gaylord Constr. Co., P.O. Box 22243, Houston, Tex., CA $549,168, grading, strs., soil cmt., base and A.C. pvt., 6.106 mi., Hy. ST 36, C 187-4-7, Austin Co. Grand total $3,099,851. BA 8/15/61. CD 8/18/61, under LB.

MINNESOTA—State Dpt. Hys., Capitol Approach, St. Paul, BRIDGES,
Pedersen Bros. Inc., Box 226, Montevideo, Minn., CA $122,887, Bridge No. 56801, Otter Tail Co.; CA $104,518 Bridge No. 56803, Otter Tail Co. BA 8/13 CD 8/23/61 under LB.

MINNESOTA—State Hy. Dpt., Hy. Bldg., St. Paul, bids opened 8/25, ROAD,
Ashbach Constr. Co., 1910 W County Rd. C, St. Paul, Minn., LB $116,996 (2 bidders) conc. paving 0.4 mi. between Territorial Rd. and Kasota Ave., Ramsey Co. CD 8/9/61.

MINNESOTA—State Hy. Dpt., Capitol Approach, St. Paul, ROAD,
Berghuis Constr. Co., Prinsburg, Minn., CA $871,947 grading 9.4 mi. southeast of Fergus Falls, Grand and Otter Tail Counties. BA 8/18 CD 8/23/61 under LB.

† J. H. Dahm—Pella, Iowa, CA $100,438, PROJ. 91-2 Div. I, WATER CONTROL STRUCTURES, Div. II, EARTHWORK Elk Creek Area 2, IOWA, State Conservation Comn., E. 7th and Court Sts., Des Moines, Iowa. CA 8/10/61.

Mary-Dayle Development Co., New London, Iowa., CA $108,777, Lenox Park SEWERS, BURLINGTON, IOWA. City, City Hall, Burlington, Iowa. CA 7/31/61.

H. S. Ostlin Co., Prairie City, Iowa., CA $124,830, DRAINAGE DISTRICT NO. 9, CEDAR RAPIDS, IOWA. Bd. Supervs. Linn Co., Courthouse, Cedar Rapids, Iowa. CA 8/8/61.

Welden Bros., Iowa Falls, Iowa., CA $265,707; SEWAGE TREATMENT PLANT, IOWA FALLS, IOWA. City, City Hall, Iowa Falls, Iowa. BA 8/14/61. CD 6/28/61.

Brower Constr. Co., 2220 Hawkeye Dr., Sioux City, Iowa CA $114,807, STREET IMPRVS., LAKE VIEW, IOWA. City, City Hall, Lake View, Iowa. CA 8/7/61.

Greene Limestone Co., Greene, Iowa., LB $90,167 A-C SURF., MANCHESTER, IOWA. City, City Hall, Manchester, Iowa. CA 8/10/61.

▲ WYOMING—State Hy. Comn., State Dpt. Office Bldg., Cheyenne, ROADS,
Wyo.—Eagle Constr. Co., Box 181, Loveland, Colo., CA $159,025, rein.-con. approach slabs, 31.219 mi. on 4-lane divided interstate hy. between Buffalo and Gillette from approx. 1 mi. east of Buffalo east Proj. FAI Proj. I 90-2(20)65, Section D, Johnson Co.; CA $144,304, rein.con. approach slabs, 14.565 mi. on 4-lane divided interstate hy. between Moorcroft and Sundance from 15 mi. east of Moorcroft FAI Proj. I 90-4(15)172 Section II, Crook Co.; CA $115,555, rein.-con. approach slabs, 34.795 mi. on 4-lane divided interstate hy. between Buffalo and Gillette from approx. 32 mi. east of Buffalo, PFI Proj. I 90-2(20)65, Section II, and I 90-3(15)103.

Wyo.—Wyoming Paving Co., Box 128, Casper, Wyo., CA $625,092, sub-base, cement treated base, plant mixed surf., cover aggreg. seal 9.559 mi. East Bound 2-lanes of 4-lane divided interstate highway between Buffalo and Gillette from approx. 12 mi. east of Buffalo FAI Proj. I 90-2(19)78, Johnson Co.
Wyo.—Charles M. Smith, 644 Big Horn St., P.O. Box 508, Thermopolis, Wyo., CA $102,924, rein.-con. approach slabs, 15.149 mi. on 4-lane divided interstate highway between Moorcroft and Sundance from Moorcroft east, Proj. I 90-4(15)172, Section 1.
Wyo.—Knisley-Moore Co., P.O. Box 77, Douglas, Wyo., CA $427,180, grading, sub-base, crushed base, plant mix surf., cover aggreg. seal, four structural plate culvert installation, 0.838 mi. between Dwyer Junction and Lingle from the east corp. limits of Guernsey easterly 3.831 mi. and from point approx. 1.2 mi. east of Guernsey, northerly, FAP Proj. F 027-1(6). Grand total $1,574,080. BA 8/24/61. CA 8/25/61. CD 8/9/61.

WYOMING—State Hy. Comn., State Dpt. Office Bldg., Cheyenne, ROAD,
rejected bids opened Aug. 24, surf. treated, Gleaners Union Rd. from approx. 1.5 mi. north of Torrington westerly 6.09 mi. to US 26 and crushed base asphalt treated surf., Vaughn Connection from approx. 3.0 mi. west of Torrington north 1.75 mi. to US 26 Proj. SC CFM 7-3, Goshen Co. CD 8/9/61.

BUILDINGS—LB & CA

Kornberg Constr. Co., Inc., 8001 Clayton Rd., St. Louis 17, Mo., Owner Builds, $750,000, 100 RESIDENCES, Georgetown Subdivision Reinke Rd. south of Manchester Rd., ELLISVILLE, MO.

▲ Papin Builders, Inc., 11670 Gravois Rd., St. Louis 26, Mo., Owner Builds, over $2,000,000, (3 Year Program), 1st Year $1,000,000, 200 RESIDENCES, Chadwick Estates Subdivision, Hy. 141 south of here, MANCHESTER, MO.

J. A. Massey Realty & Constr. Co., Golden Valley Dr. west of Telegraph Rd., Mehlville 29, Mo., Owner Builds, $400,000, 28 RESIDENCES, Telegraph Rd. and Golden Valley Dr., MEHLVILLE (ST. LOUIS 29, P.O.), MO.

Pickens & Bond Constr. Co., Gazette Bldg., Little Rock, Ark., CA $630,720, 30,000 sq. ft. ARTS and SCIENCES BLDG. MacArthur Park, LITTLE ROCK, ARK. Community Center of Arts and Sciences, MacArthur Park, Little Rock, Ark. BA 8/3/61. CD 8/9/61, under LB.

▲ Kuni-Jacobsmeyer Co., 8015 Forsyth Blvd., Clayton 5, Mo., Owner Builds, $1,750,000, (3 year program), 1st year $750,000, 151 RESIDENCES, Tealridge Subdivision, Gravois Rd west of Grant's Farm, SAPPINGTON (ST. LOUIS 28 P.O.), MO.

J. E. Krieg & Son, Inc., P.O. Box 408, Fargo, N. D., LB $634,000, (3 bidders), CLINIC ADDN. FARGO, N. D. Fargo Clinic, 807 Broadway, Fargo, N. D. Foss & Co., 28 N. 3rd St., Moorhead, Minn., archt.

Thad Dederick Constr. Co., Box 13067, Houston, Tex., LB $637,700, (7 bidders), elementary SCHOOL combination elementary and high school, CHINA, TEX. Hardin-Jefferson Ind. School Dist., China, Tex. BA 8/10/61. CD 7/12/61.

▲ C. F. Braum Co., 1000 S. Fremont Ave., Alhambra, Calif., CA Est. $12,500,000, polyethylene PLANT Miller Cut-Off Road near San Jacinto Battle Grounds HOUSTON, TEX. National Distillers & Chemical Corp., Miller Cut-Off Road, Houston, Tex. CD 2/17/61.

▲ McKenzie Constr. Co., Box 806, San Antonio, Tex., CA $1,105,000, 10 story OFFICE, Cypress St. between Main Ave. and N. McCullough, SAN ANTONIO, TEX. Morris Kallison, 124 S. Flores St., San Antonio, Tex. BA 5/30/61. CD 6/12/61, under LB.

Roy E. Skinner & Associates, 555 Cowden St., Midland, Tex., CA $935,000, 2 story, 100 room brick, motor HOTEL-MOTEL, TERMINAL, TEX. Jay Hickox, 5700 Braniff Drive, Oklahoma City, Okla. Vernon Trainer & J. Frank Powell, 800 Indiana St., Midland, Tex. archts. CD 1114/60, under Owner, c/o Jimmie E. Leath, and J. Frank Powell, Associates, archts., as owners.

▲† Electronics & Missile Facilities, Inc., 2 Lafayette St., New York, N. Y., CA $4,257,802, 250 units CAPEHART HOUSING, Malmstrom Air Force Base, GREAT FALLS, MONT. Base Procurement Office, Malmstrom Air Force Base, Great Falls, Mont. BA 8/1/61. CA 8/25/61. CD 8/4/61, under LB.

Pew Constr. Co., 301 Walnut St., Box 1222, Missoula, Mont., CA $734,000, Holy Family HOSPITAL, ST IGNATIUS, MONT. Sisters of Charity of Providence, 2311 St. Catherine's East, Montreal, Que., Canada. CD 7/17/61.

R. W. Mier Constr. Co., 2409 S. Jackson St., Denver, Colo., LB $481,216, est. $590,000, (6 bidders), 3 story, 116 x 147 ft. HIGH SCHOOL ADDN., FORT LUPTON, COLO. School Dist. RE-8, Fort Lupton, Colo. Ken R. White, 1567 Marion, Denver, Colo. struct. engr. Harmon & Beckett, 2243 W. 33rd Ave., Denver, Colo., mech. engrs. Swanson-Rink & Assocs., 1640 Boulder, Denver, Colo., elec. engrs. BA 8/23/61. CD 8/1/61.

FAR WEST

HEAVY CONSTRUCTION—BA

Ariz., Phoenix—BA 9/19—City, Municipal Office Bldg., 10 North Third Ave., PAVING Heatherbrae Dr., from 7th Ave. to 15th Ave., MacKenzie Drive from 7th Ave. to 15th Ave., and 9th, 11th and 13th Ave. from South line of Woodlea to Glenrosa Ave., Job No. P-59139, $101,387. CD 6/1/61.

† Calif., Point Mugu—BA 9/19—Southwest Div. Bureau Yards & Docks, 1220 Pacific Hy., San Diego, Zone 32, MODIFY ROADS, Naval Missile Facility, Point Arguello, Spec. 37967. $100,000-$250,000. CD 12/9/60.

† Oregon—BA 9/19—U. S. Eng., Pittock Block, Portland, LEVEE IMPRVS., left bank, Columbia River, ENG-35-026-62-31. $400,000. Plans deposit $1.40 CD 9/30/60.

† Oregon—BA 9/20—U. S. Eng., 628 Pittock Block, Portland, Zone 5, BANK PROTECTION, Chase Location, left bank McKenzie River approx. 1 mi. north of Springfield, Lane Co., CIVENG-35-026-62-35, approx. $25,000. Plans deposit $1.

† Washington—BA 9/21—Bureau Reclamation, Dpt. Interior, Regional Director, Region 1, Box 937, Boise, Idaho, DRILLING PILOT HOLES, Chelan and Douglas Counties, Greater Wenatchee Div., Chief Joseph Dam Project, Spec. 100C-496. CD 9/16/59.

† Nev., Owyhee—BA 9/26—Bureau of Indian Affairs, Branch of Plant Design and Constr., Albuquerque, N. M., constr. of WATER LINE from existing well to present line, new 75,000 gallon ground storage reservoir, new pump house, electrical work, IFB BIA-0150-62-12.

BUILDINGS—BA

▲ Calif., Fresno—BA 9/12—Fresno City Unif. School Dist., 2348 Mariposa St., wood frame-stucco air-conditioned Tenaya JUNIOR HIGH SCHOOL, Fruit and Bullard Sts. $1,259,000. Plans deposit $50. William Hastrup, Crocker Anglo Bank Bldg., Fresno, Calif., archt. CD 6/23/61.

▲ Calif., Fresno—BA 9/12—Fresno City Unif. School Dist., 2348 Mariposa St., wood frame-stucco air-conditioned Tioga JUNIOR HIGH SCHOOL, 1st and Santa Ana Sts. $1,383,000. Plans deposit $50. William Hastrup, Crocker Anglo Bank Bldg., Fresno, Calif., archt. CD 6/23/61.

Wash., Seattle—BA 9/12—St. Demetrios Greek Orthodox Church, 232 Yale Ave. N., 16,000 sq. ft., rein.-con. CHURCH. $900,000. Paul Thiry, 800 Columbia St., archt. Extended date. CD 8/23/61.

▲ Calif., San Mateo—BA 9/13—San Mateo College Dist., Bus. Mgr., Coyote Point Campus, San Mateo, Phase II, TECHNICAL, VOCATIONAL ARTS & HORTICULTURE CENTER, three-1 story bldgs. $1,200,000. Plans deposit $150. John Carl Warnecke & Assoc., 55 New Montgomery St., San Francisco, Calif., archts. John A. Blume & Assoc., 612 Howard St., San Francisco, Calif., engrs. CD 11/17/60.

Calif., Oakland—BA 9/14—City, City Hall, Phase IV, HALL of JUSTICE, 7th and Broadway. $880,440.

Wash., Tacoma—BA 9/14—State Dpt. General Admin., General Admin. Bldg., Olympia, converting 4 story, rein.-con. former Cushman Hospital into JUVENILE RECEPTION, DIAGNOSTIC and RESEARCH CENTER. Plans deposit $50. Paul DeLaney & Assocs., 418 Maritime Bldg., Seattle, Zone 4, archts.

▲ **Calif., San Jose**—BA 9/19—Eastside Union High School Dist., 4600 Alum Rock Ave., 170,000 sq. ft. Wm. Overfelt High School, two swimming pools. Over $3,000,000. Walter, Price & Porter, 2060 Clarmar Way, San Jose, Calif., assoc. archts. Pregnoff & Matheu and Charles Urhammer, 251 Kearny St., San Francisco, Calif., engrs. CD 6/24/60.

▲ **Calif., Oakland** — BA 9/26 — Bd. Supervs. Alameda Co., Courthouse, 9 story spiral, 1 bsmnt. level, 350,000 sq. ft. rein.-con. PARKING STRUCTURE, heliport on roof, 12th, 13th, Madison and Jackson. $2,300,000. Van Bourg, Nakamura & Assocs., Ratcliff, Slama & Cad walader, Suite A, Claremont Hotel, Berkeley, Calif., archts. H. J. Brunnier, 55 New Montgomery St., San Francisco, Calif., engr. CD 2/13/61.

▲ **CALIFORNIA**—BA 10/4—State Div. Hys., 1120 N St., Sacramento; ROAD,

Alameda Co.—pave 1.7 mi. four lane freeway on Jackson St. (State Rte. 105) from Harder Rd. to Mission Blvd., Castro St. $2,487,900. CD 12/5/60.

HEAVY CONSTRUCTION—LB & CA

▲ **Williams & Burrows, Inc.**, 500 Harbor Blvd., Belmont, Calif., LB **$3,056,140**, (3 bidders), DAM, SPILLWAY, OUTLET works, 400,000 cu. yd. excav., 7,000 cu. yd. structural concrete, Virginia Ranch Dam, Browns Valley, Yuba Co., CALIFORNIA. Browns Valley Irrigation Dist., Browns Valley, Calif. Gillett-Harris, Colusa Hy., Yuba City, Calif. and Woodward-Clyde-Sherard & Assoc., 2811 Adeline, Oakland, Calif., engrs. CD 4/14/60.

Beasley Engineering Co., 1234 Powell, Emeryville, Calif., LB **$185,911**, (7 bidders), Proj. FC 7-3, WATER TRANSMISSION LINES, Santa-Rita-Dougherty Pipeline, near Pleasanton, Alameda Co., CALIFORNIA. Alameda County Flood Control & Water Conservation Dist., Courthouse, Oakland, Calif. BA 8/22. CD 8/2/61.

† **H. K. Porter Co., Inc., Delta-Star Electric Div.**, 2437 W. Fulton, Chicago, Ill., LB **$95,402**, (4 bidders), Sched. 1, GENERATOR-VOLTAGE BUS STRUCTURE and two 600-volt FEEDER BUSWAYS, Trinity Powerplant, Trinity River Div., Central Valley Proj. DS 5636, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Denver Federal Center, Denver, Colo. BA 8/24. CD 7/19/61;

Brown Boveri Corp., 19 Rector St., New York, N. Y., LB **$82,433**, (4 bidders), Sched. 2, two metal-clad SWITCHGEAR ASSEMBLIES Trinity powerplant, Central Valley Proj. DS 5636 (California).

C & H Contractors, Inc., 1015 Market St., Richmond, Calif., LB **$696,791**, (3 bidders), 8 mi. STREET WORK, CURBS, GUTTERS, SIDEWALKS, etc., near here, MARTINEZ, CALIF. Contra Costa Co., Hall of Records, Martinez, Calif. Leptien, Cronin & Cooper, 3604 Alhambra Ave., Martinez, Calif., engrs. BA 8/22. CD 6/10/52.

† **J. R. Cantrall Corp.**, 9510 East Rush St., El Monte, Calif., CA **$333,800**, FPS-27 RADAR TOWER, ENG-04-353-62-6B, SAN PEDRO HILL, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. BA 8/17. CD 12/22/60.

BUILDINGS—LB & CA

Bell & Valdez, 14212 Lake Hill Blvd., Bellevue, Wash., Owner Builds **$600,000**, 37 HOUSES, Eastgate Section BELLEVUE, WASH. CD 12/15/54.

▲ **W. M. Yeaman**, 601 S. 1st. St., Yakima, Wash., CA **$1,190,717**, 4 story COURTHOUSE ADDN., YAKIMA, WASH. Yakima Co., County Courthouse Yakima, Wash., BA 8/17/61. CD 8/23/61 under LB.

W. R. O'Rourke, 339 S. 2nd St., Walla Walla, Wash., CA **$728,187**, mechanical contract, COURTHOUSE ADDN. (Yakima, Wash.).

Contractors Inc., Box 3913, Portland, Ore., LB **$992,313** (7 bidders) JUNIOR HIGH SCHOOL, PORTLAND, ORE. Parkrose School Dist. No. 3, 10629 NE Prescott St., Portland, Ore. BA 8/22/61. CD 8/1/61.

▲ **Kemp Bros.** and **George K. Thompson**, 8750 Mettler St., Los Angeles, Calif., CA **$3,338,932** 6 story 310,000 sq. ft. SCIENCE and CLASSROOM, Orange County State College, W. O. 4414GC-20, FULLERTON, CALIF. State Dpt. P. Wks., 1120 N St., Sacramento, Calif. BA 8/16 CA 8/24 Grand Total $5,448,382. CD 8/18/61, under LB;

Paul Hardeman, Inc., 10579 Dale Ave., Stanton, Calif., CA **$1,216,000** combined mechanical work, Science and Classroom, Orange County State College (Fullerton, Calif.);

Sherwin Electric Service, 3229 Casitas Ave., Los Angeles 39, Calif., CA $893,450 electrical work, Science and Classroom, Orange County State College (Fullerton, Calif.). CD 8/22 under LB.

▲ **Rothschild, Raffin & Weirick**, 875 Sansome St., San Francisco, Calif., CA **$1,521,000**, 3 story FINE ARTS BLDG., Alameda State College, W.O. 4554GC-28, HAYWARD, CALIF. State Dpt. P. Wks., 1120 N St., Sacramento, Calif. BA 8/8 CA 8/25 CD 8/14/61 under LB.

University City Builders, Inc., 3010 Cowley Way, San Diego 17, Calif., CA **$582,355**, 32 RESIDENCES and GARAGES, Unit 4, University CITY (SAN DIEGO P.O.), CALIF. University City, P.O. Box 17158, San Diego 17, Calif. CD 10/17/60 under CA.

THE CLIENT IS PLEASED

H. C. Bohack Co., Inc.
Long Island Terminal Warehouse
Arch./Engr.—Skidmore, Owings & Merrill
Contr.—Turner Construction Co.

Since 1954, when this modern Bohack warehouse was erected to meet Long Island's rapidly expanding grocery needs, Balfour Rolling Steel Doors have been providing dependable service on the loading docks.

Balfour rolling doors

doc-port® doors
steel service doors
automatic fire doors
pygmee® counter doors
steel grilles

Catalog in Sweet's or write:
WALTER BALFOUR & CO. INC. **Brooklyn 22, N. Y.**

24

HEAVY CONSTRUCTION—LB & CA

Vinson Constr. Co., 1920 W. Grant St., Phoenix, Ariz. LB **$194,797**, est. $230,000, (7 bidders) STABILIZATION PONDS at 23rd Ave. Sewage Treatment Plant, approx. 138 acres PHOENIX, ARIZ. City Dpt. Engineering, 837 E. Jefferson St., Phoenix, Ariz. John A. Carollo, 3308 N. 3rd St., Phoenix, Ariz. consult. engrs. CD 6/1/61.

N. P. Van Valkenburgh Co., 3634 N. 39 Ave., Phoenix, Ariz. LB **$104,236**, est. $135,493, (6 bidders) 12 in. SANITARY SEWER TRUNK, from 40th St. and Missouri Ave. to Lincoln Dr. and 56th St. approx. 2½ mi. Proj. No. S-61106(BI), PHOENIX, ARIZ. City Dpt. Engineering, 837 E. Jefferson St., Phoenix, Ariz. American Engineering Co., 2803 N. 7th Ave., Phoenix, Ariz., engrs. CD 6/1/61.

† A. R. Nieman Constr. Co., 2001 Main St., Vancouver, Wash. LB **$497,418** (9 bidders) SERVICE CENTER, WAREHOUSE, Ross Substation, WASHINGTON, Bonneville Power Admin., 1001 NE Lloyd Blvd., Portland, Ore. BA 8/23/61. CD 8/16/61.

Thorburn & Logozo, 4608 36th Ave. SW, Seattle, Wash. CA **$166,652** (8 bidders) 35,400 ft. 6 to 12 in. cement-asbestos WATER SYSTEM, BELLEVUE, WASH. Water Dist. No. 99, 14224 Belleuve-Redmond Rd., BELLEUVE, Wash., BA 8/24/61. CD 8/16/61.

† Klamath Plumbing & Heating Co., 800 Market St., Klamath Falls, Ore., CA **$146,254**, Klamath Project, Schedules 1 and 2, PUMPING PLANTS NOS. 10 and 11, Sump 3, Proj. 200C 483, OREGON, Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. BA 8/15/61. CA 8/21/61. CD 9/16/60.

LaGrande Concrete Pipe Co., LaGrande, Ore., LB **$102,378**, furnishing 27 in. rein.-conc. SEWER PIPE LA GRANDE, ORE. City, City Hall, LaGrande, Ore. BA 8/16/61. CD 7/26/61.

Frank T. Matthews, 2415 NE Alberta St., Portland, Ore., LB **$67,537**, (4 bidders) 6,260 lin. ft. WATER-MAINS, PORTLAND, ORE. West Slope Water Dist., 3105 SW. 89th Ave., Portland, Ore. Carl Green, Henry Bldg., Portland, Ore., engrs. BA 8/21/61.

CALIFORNIA—State Div. Hys., 120 South Spring St., Los Angeles, ROAD,

Wulfert Co. Inc., 14665 Washington Ave., San Leandro, Calif., CA **$562,712** median barrier, guard railing, sign structures and lighting on Harbor Freeway between 120 St. and 4 level interchange and portions of Santa Ana Freeway, Los Angeles Co. BA 8/10. CA 8/25. CD 8/15/61 under LB.

CALIFORNIA—State Div. Hys., 1120 N St., Sacramento, bids opened 8/23, ROADS,

Calif.—Jesse H. Harrison, P. O. Box 315, San Ardo, Calif., LB **$159,362** (5 bidders) grading, paving to wid'n., reconstr. 1.9 mi. FAS County Rd. 666 (Bitterwater Rd.) between 1st St. in King City and 1.9 mi. northeasterly, Monterey Co.

BUILDINGS—LB & CA

▲ Engstrum & Nourse and Stolte, Inc., 923 Folsom St., San Francisco, Calif., LB **$1,012,400**, (4 bidders), BEVATRON SHIELDING FDN. and SUPPORT STRUCTURES at Lawrence Radiation Laboratory, Hill Area, Bldg. 51, BERKELEY, CALIF. Regents of University of California, Office Architects & Engineers, University of Calif., Berkeley, Calif. Huber & Knapik, 57 Post St., San Francisco, Calif., engrs. CD 11/28/60.

▲ Scott W. Bonds, Inc., 900 Kearney St., El Cerrito, Calif., Owner Builds, **$1,000,000**, 70 HOMES, Appian Way and Valley View Rd., EL SOBRANTE, CALIF.

Leon M. Wheatley, Inc., 4123 El Camino Real, Palo Alto, Calif., LB **$972,023**, (5 bidders), 1 story, 40,000 sq. ft. concrete slab on grade, HIGH SCHOOL, tilt-up GYMNASIUM, HALF MOON BAY, CALIF. Half Moon Bay Union High School Dist., P.O. Box H, Half Moon Bay, Calif. Delp W. Johnson, Poole & Storm, Rm. 149, 166 Geary St., San Francisco, Calif., archts. Milton G. Leong, 2140 Shattuck Ave., Berkeley, Calif., engr. BA 8/22. CD 5/5/60.

▲ Ciatti Constr. Co., 700 Harbor Blvd., Belmont, Calif., CA **$2,000,000**, 2 story, 112,000 sq. ft. steel frame, tilt-up concrete ENGINEERING PLANT, Howard Ave. and Industrial Rd., SAN CARLOS, CALIF. Lenkurt Electric Co. Inc., Div. General Telephone & Electronics Corp., 1105 County Rd., San Carlos, Calif. John S. Bolles, 14 Gold St., San Francisco, Calif., archt. Chin & Hensolt, 121 Second St., San Francisco, Calif., engrs. CD 2/3/61

▲ Barrett Constr. Co., 1800 Evans Ave., San Francisco, Calif., LB **$3,293,000**, (4 bidders), Savings & Loan Assn. OFFICE, 22 and Mission Sts., SAN FRANCISCO, CALIF. Bayview Federal Savings & Loan Assn., Geary and Palm Aves, San Francisco, Calif. BA 8/18. CD 8/2/61.

CANADA

BUILDINGS—LB & CA

▲ Dravo Constr. Ltd., 150 Bay St., Ottawa, Ont., CA **$8,250,000**, IRON ORE PELLETIZING ADDN., Iron Plant Expansion, COPPER CLIFF, ONT. International Nickel Co. of Canada Ltd., Copper Cliff, Ont. CD 11/14/60.

▲ Varamae Constr. Co., Ltd., 250 Merton St., Toronto, Ont., CA **$2,136,000**, 1, 2, 3 story T-shaped, structural steel, precast concrete frame CENTRAL COLLEGIATE, TORONTO, ONT. Scarborough Bd. Educ., 2472 Eglinton Ave. E., Toronto, Ont. BA 8/18/61. CD 7/31/61.

LATIN AMERICA

HEAVY CONSTRUCTION—BA

▲ Argentina, Resistencia—BA 9/22—Ministry of Economy and P. Wks. of Prov. Chaco, Marcelo T. de Alvear 32, Resistencia, AIRPORT. $6,000,000. Plans deposit $18.08.

▲ ARGENTINA—BA 10/4—Direcc. Nrov. Vial. Misiones, Av. Maipu 3, Buenos Aires, ROADS,
200 klm. flex paving, 110 klm., 24 rein.-con. bridges (533 lineal mts.) Prov. R 1 Posadas-Aposteles-Prov. R.2, Prov. R.4 S. Ana-L.N. Alem.Prov. R 17, Eldorado-9 de Julio-Bernardo de Irigoyen, Misiones Prov. $5,561,000.
230 klm. basic works and bridges (961 lineal mts.) Prov. R 2 Ao Chimiray-Prov.R.4,Prov.R.2 Jct. P.R.4-Panambi-Santa Rita-Colonia Aurora- El Soberbio, Panambi. $4,651,000.

▲ ARGENTINA—BA 10/16—Direcc. Nacional Vialidad, Av. Maipu 3, Buenos Aires, ROAD,
314.6 klms. basic work and gravel surf. Caleta Olivia-San Julian, Santa Cruz Prov. $5,875,000.

▲ ARGENTINA—BA 10/23—Direcc. Nacional Vialidad, Av. Maipu 3, Buenos Aires, ROAD,
92 klms. basic work and gravel S. Sebastian-R. Grande Laguna Camay-Lago Fagnano, Tierra Del Fuego Prov. $1,712,000.

▲ Peru—BA 11/6—Corporacion Peruana de Aeropuertos y Aviacion Commercial, Lima, AIRPORTS at Tarapoto, Cuzco, Pucallpa and Pueto Maldonado. $4,250,000.

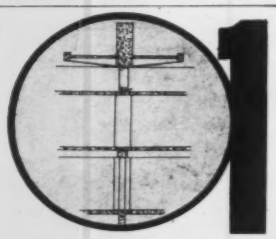
▲ ARGENTINA—BA 11/14—Direcc. Nacional Vialidad, Av. Maipu 3, Buenos Aires, ROAD,
386 klms. basic work and gravel surf. Rio Gallegos-San Julian, Santa Cruz Prov. $6,425,000.

FOREIGN

BUILDINGS—LB & CA

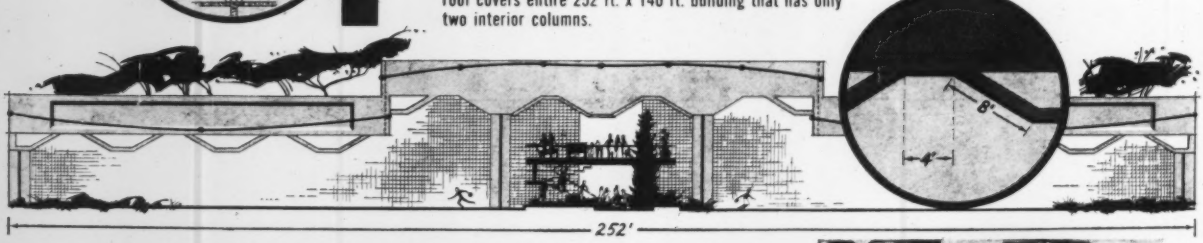
▲ Edmund Nuttal Sons & Co., (London) Ltd., 22 Grosvenor Gardens, London, S.W. 1, England, CA **$15,128,968**, 1 mi. main bore, Tyne Road TUNNEL under River Tyne to connect Wallsend and Jarrow, ENGLAND. Tyne Tunnel Joint Committee, County Councils, Northumberland and Durham, England. Mott, Hay & Anderson, 9 Iddesleigh House, Caxton St., London S.W. 1, England, engrs. CD 3/14/61.

▲ Melville Dundas & Whitson Ltd., 21 Blythewood Sq., Glasgow C.2, Scotland, CA Est. **$7,000,000**, 75,000 sq. ft. CAR FACTORY, Linwood near Paisley, SCOTLAND. Rootes Group, Devonshire House, Piccadilly, London W1, England. Harry W. Weedon & Partners, 44-47 Calthorpe Rd., Edgebaston, Birmingham, England, archts. Redpath, Brown & Co., GPO Box 170, 19 Waterloo St., Glasgow, Scotland, and Fleming Bros., Stanchion House, Park Gardens, Glasgow C.3, Scotland, engrs.



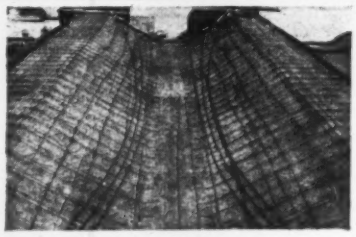
POST-TENSIONED PRESTRESSED CONCRETE BEAM HOLDS ROOF OF 42,500 SQ. FT. BOWLING ALLEY!

3½" thick folded plate lightweight prestressed concrete roof covers entire 252 ft. x 140 ft. building that has only two interior columns.



Three cast-in-place post-tensioned, prestressed concrete beams tied together with Prescon stressing tendons into one long unit make possible the unique structure of a 48 lane bowling alley that has no support columns in the lane area.

The Buccaneer Bowl in Corpus Christi, Texas was constructed at a cost of only $8.40 per square foot using a concrete roof and support beam prestressed by the Prescon System of post-tensioning. This price includes a partial basement, a mezzanine restaurant, observation deck and a luxurious lobby — all air conditioned. The cost of the folded plate and the supporting beams was $1.36 per square foot of area.



Forms built of 4' x 8' plywood sheets ready for pouring of folded plate roof. Stressing tendons provide strength for 70' span.

PRESCON®

©The Prescon Corp.

THE PRESCON CORPORATION

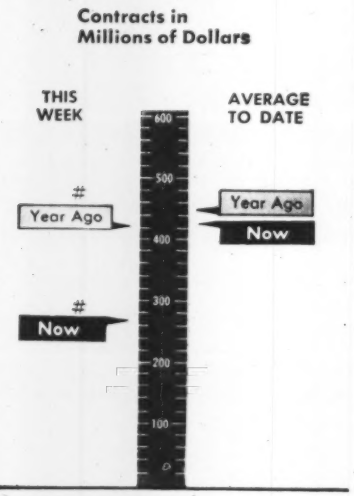
General Offices and Southwestern Division
P. O. BOX 4186 • TUlip 2-6571 • CORPUS CHRISTI, TEXAS

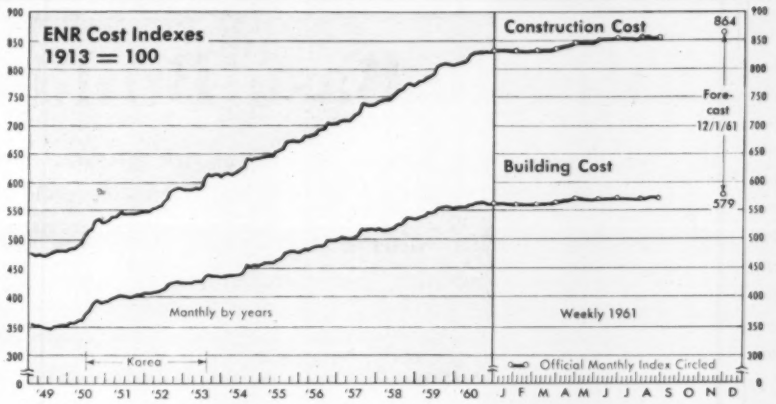
ATLANTA	DENVER	LOS ANGELES	NEW YORK
P. O. Box 1175	1445 West Quincy	P. O. Box 407	P. O. Box 9008
DRake 7-3853	SUnset 1-4798	FAculty 1-3377	(Albany, N. Y.)
North Decatur, Ga.	Englewood, Colo.	Gardena, Calif.	HEmlock 9-1876
			Delmar, New York

MEMBER PRESTRESSED CONCRETE INSTITUTE

Construction Scoreboard

This Week...





ENR INDEXES (1913=100), 20-cities' average	Week of Aug. 31 1961	% Change from Aug. 3 1961	% Change from Sept. 1 1960
Construction Cost	854.01*	−0.01	+2.8
Building Cost	571.34*	+0.08	+1.5

*Official Monthly Index for August, 1961

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

AMOUNT OF CONTRACTS LET

Contracts Awarded In 50 States By Type	This Week millions	Cum. 36 wks 1961	Chge '60-'61 %
All Heavy Construction	$268.9	$15,301.8	− 4
By Ownership			
PRIVATE	118.8	7,402.7	−13
PUBLIC	150.1	7,899.1	+ 6
State & Municipal	124.8	6,073.2	+ 6
Federal	25.3	1,825.9	+ 4
By Type of Work			
PUBLIC			
Waterworks	2.5	272.0	−15
Sewerage	14.4	516.3	+26
Bridges*	8.0	458.1	−20
Highways	49.1	2,645.2	+13
Earthworks, Dams & Waterways	2.8	579.8	+ 1
Buildings:			
Excl. Housing	40.8	1,867.8	+10
Housing	21.2	605.7	+24
Unclassified	11.3	954.7	−10
PRIVATE			
Buildings:			
Mass Housing	43.6	3,343.8	−19
Commercial	37.2	1,825.1	+ 4
Industrial	35.9	1,935.3	− 5
Unclassified	2.1	298.0	−53
* Includes Private bridges		# 4-day week	

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

NEW CONSTRUCTION CAPITAL

	Week of Aug. 31 millions	Cum. 35 wks 1961	Chge '60-'61 %
Corporate Securities	$ 46.8	$2,317.4	+11
State and Municipal:			
All Except Housing	90.0	4,612.7	− 1
Housing	0.1	97.9	−47
Federal Loans	4.2	187.9	+56
Federal Aid	0	2,990.6	+10
Total Nonfederal	$141.1	$10,206.5	+ 5
Federal Appropriations:			
Projects in U. S.	0	$ 268.6	−89
Outside U. S.	0	2.3	−99
Total New Capital	$141.0	$10,477.5	−16

This Month . . .

WAGE RATES, 20-cities' average	Sept. 1961	% Change from Aug. 1961	% Change from Sept. 1960
Common	$2.862	+0.06	+4.5
Skilled (average 3 trades)	4.237	+0.3	+3.7
Bricklayers	4.435	+0.2	+3.0
Structural Ironworkers	4.304	+0.8	+4.2
Carpenters	3.975	+0.1	+7.1
Equipment operators (average three types)	3.875	+0.3	+4.4
MATERIAL PRICES, 20-cities' average			
Structural Steel (average 3 mills), per cwt	5.50	0	0
Lumber, 2x4 Fir, per M fbm	116.17	−1.0	−1.6
Lumber, 2x4 Pine, per M fbm	108.07	−0.2	−1.2
Cement, bulk, per bbl	4.03	0	+0.2
Sand, per ton	2.355	0	−0.3
Ready-mixed concrete, per cu yd	14.21	0	−0.7
Gypsum sheathing, ½"x2'x8', per Msf*	61.68	−0.2	−1.4
Fiber board sheathing, ½" sq. ed., per Msf*	70.41	−0.3	−0.8
Mineral wool insulation, 3' batts, per Msf*	66.92	0	−1.7
Crushed stone, 1½", per ton, CL	2.711	0	+2.5
Concrete blocks, sand/gravel, 8"x8"x16", each*	0.2278	0	+2.3

Latest Month . . .

	Aug. 1961	June 1961	Aug. 1960
Brick, common per M	41.28	0	+0.6
Lime, hydrated finishing, per ton, CL	39.68	0	+3.0
Structural clay tile, 3x12x12", per M, 2,000 up*	193.35	0	+2.7
Vitrified clay sewer pipe, std 12", per ft	1.454	+0.3	+3.6
Concrete sewer pipe, 12", per ft	1.451	+2.1	+2.3

*Delivered, trucklots

ENR INDEX REVIEW

	Construction Cost		Building Cost		Volume	
1960	1913%100	1949%100	1913%100	1949%100	1913%100	1949%100
Aug	830.18	174.03	562.17	159.80	631	182
Sept	830.92	174.19	562.79	159.98	603	174
Oct	829.58	173.90	561.45	159.60	591	171
Nov	830.09	174.01	561.11	159.50	609	176
Dec	830.61	174.12	561.50	159.61	503	145
1960 Average	823.55	172.64	559.43	159.02	597	172
1961						
Jan	834.32	174.90	562.91	160.01	557	161
Feb	834.27	174.89	562.93	160.02	464	134
Mar	834.16	174.87	562.89	160.01	519	150
Apr	837.58*	175.58*	565.19*	160.66*	598*	173*
May	847.32*	177.62*	568.99*	161.74*	609*	176*
June	850.38*	178.28*	570.17*	162.07*	634*	183*
July	853.64*	178.95*	571.66*	162.50*	609*	176*
Aug	854.09*	179.05*	570.86*	162.27*	587*	170*
Sept	854.01*	179.03*	571.34*	162.40*	...	...

* Subject to adjustment due to retroactive wage increases.

Missile-Base Builder Wins Profit

- **Paul Hardeman, Inc. backs over-run claims with volumes of documents and the Critical Path Method.**
- **This paper war, plus construction engineers who know aerodynamics, pulls profit from tough jobs.**

Missile base contracts—red-ink gushers for some of the nation's largest and oldest construction companies—spew streams of black ink for Paul Hardeman, Inc.

The engineering-construction company, based at Stanton, Calif., jumped into missile-base work at Cape Canaveral in 1953 when volume totaled only $1.5 million. From there, the corporation blasted off. Volume went to $14.4 million in 1959, climbed to $51.1 million in 1960, and in the first six months of this year, soared to $38.6 million. This compares to first-half volume in 1960 of $16.6 million.

Net profit after taxes jumped even more briskly—$176,644 in 1959 to $708,396 in 1960. And for the first six months of this year, net profit tallied $695,705, as against net of only $157,902 in the first half of last year.

To achieve such results in a specialty type of construction that for the most part painfully squeezed some old timers, management fought fire with fire—or more specifically—paper with paper. "We practically document the government to death," says Paul Hardeman, 46-year-old board chairman and president of the company.

The missile base program—complex and vast—operates under the headache-producing concept of concurrency. As the missiles are modified and redesigned, so are their bases.

Design changes—crates of them sometimes—roll into the offices of the contractors whose work forces and machinery dot work-sites measured in thousands of square miles. And from these design changes spring a nightmare of construction-procedure revisions that drain a contractor's capital—and profits.

Obtaining reimbursement on change orders at best chews up months, perhaps more than a year. And some contractors wonder if reimbursement ever will be made.

Mr. Hardeman concedes that the claims made by his company may not be paid any faster than the next contractor's—"they do come in slowly"—but he emphasizes the company has not yet gone to the U. S. Court of Claims. The government comes through with reimbursement.

"We make our claims stick," says Mr. Hardeman: "We prove our costs, documenting each change and its impact on future costs as remote as six months from the date of change."

This sun-tanned six-foot-plus engineer rather ruefully adds, "but to document our claims, we run a paper factory. We protect ourselves legally paperwise."

Mr. Hardeman believes that his company maintains a much larger home office staff and many more on-site paper handlers than the average contractor.

"I shudder sometimes when I walk through one of our project offices and see the number of people working in the office," says Mr. Hardeman. He blames the paper-work problem largely on the weapons system contractors.

He recalls one contract with a weapons system company. "It first looked like a small $500,000 project; then we were handed 9,600 drawings. We used a total of 186 supervisors, clerks, engineers and inspectors to supervise about 130 craftsmen actually doing the work. That $500,000 project wound up costing $2.3 million."

Base-Builder Hardeman
Runs a "paper factory," too.

Such huge increases over original estimated cost—rather typical of the missile base program—do build up a company's volume. But Mr. Hardeman emphasizes that profits fall far short of keeping pace with the soaring costs.

In 1960, the company's volume of missile base business totaled about $50 million. About 40% of this total resulted from change orders and modifications. "But our profit on this total volume of $50 million amounted to only slightly more than 3% before taxes," Mr. Hardeman says.

Change orders therefore don't rank as money-makers in the missile-base construction business. "A good contractor makes money when he can complete his project as rapidly as possible and go on to another," says Mr. Hardeman.

Among recent additions to this company's arsenal of claims-proof is the Critical Path Method (ENR Jan. 26, p.25). On its contracts, the Hardeman company plans, schedules and controls the projects with CPM. It sets up its diagram model and goes to work. Then when a change order comes through on the job involved, Hardeman uses the mathematical potential of CPM to its utmost. The job is reprogrammed, the new costs are determined and a new diagram shows what the change does to schedules.

The company then forwards with its claim the CPM diagram model as applied to the project under the original contract and the diagram model resulting from the ordered revision. No phase of the job as originally planned and changed is omitted. Along with these drawings go bound volumes of other evidence supporting the claims.

But it takes more than paper-shuffling ability for an engineering-construction company to make money. It takes technical know-how and "of that we have plenty," says Mr. Hardeman.

In 1945, the company started as a small partnership—Paul Hardeman & Sons, incorporating under that name in 1952. When the company cracked the missile base business it still ranked as small business.

But missile technology moved fast, grew big fast and Paul Hardeman grew with it, through diversification and acquisition of other companies.

By 1959, the company performed approximately 30% of the work on all intercontinental ballistic missile test stands at Cape Canaveral.

"That gave us the opportunity to see

With Paper

missiles develop and we developed with them," says Mr. Hardeman. He now rates his permanent engineering staff as competent as any in the aircraft industry. "They are construction men with an extensive knowledge of today's weapons systems. Few construction companies possess a large staff with this type of specialized knowledge," Mr. Hardeman says.

Mr. Hardeman believes that this specialized knowledge allows the company to anticipate some of the changes that eventually fly in from the missile makers. "Some of this intelligent anticipation undoubtedly saved us time and money, for we were ready to move at least generally in the direction that the eventual modification demanded."

The government, weapons systems managers and other construction firms apparently like the abilities the Hardeman company possesses. Right now, the company is involved in contracts worth about $280 million, both as joint venturer and individual. Its backlog, including joint venture shares and direct contracts, now stands at $86 million.

Although most of this work—about 80%—represents missile base construction and other government contracts, the company's abilities extend to many other fields. Other activities include petroleum refineries, chemical plants, highway projects and just recently, a hydroelectric project in El Salvador.

In Argentina, a subsidiary holds contracts worth $11 million on three sections of the Pan American Highway. In Japan, the company is turnkey contractor for two chemical plants.

In 1959, the Hardeman company was acquired by Universal-American Corp. of New York City, which operated it as a wholly owned subsidiary. But further expansion in construction, called for additional working capital. In June, Universal sold 350,000 shares of its 2.1-million share holding in Hardeman for $8 per share. About $2 million of the $2.5 million in net proceeds was added to the Hardeman company's working capital. This increase raised the company's bonding capacity to about $25 million, from a former capacity of $10 million to $12.5 million.

And last week, the company increased its business stature in another way; Hardeman listed its stock on the American Stock Exchange where it traded at prices ranging from $20.375 to $25 a share.

Business in Brief . . .

• **Construction firm bought**—Hooper Construction Co., Miami-based earthmoving and heavy construction contractor, was bought by General Development Corp., also of Miami. General Development is one of Florida's largest land development and homebuilding companies. The $4-million transaction involved an exchange of stock.

• **Sold!**—Duval Engineering & Contracting Co. of Jacksonville, banned since March from federal-aid and state road jobs as a result of fraud allegations, sold out last week to Houdaille Industries Inc. of Buffalo N. Y. Houdaille, a diversified company, will establish Duval as a division of R. H. Wright & Sons Co. of Fort Lauderdale, its construction subsidiary. Houdaille reportedly paid $4 million cash for the Duval operation.

• **State building budget**—Maryland's state agencies outlined an $85.9-million construction program for the next five years, according to the State Planning Department.

• **Rising cost of maintenance**—Texas State Highway Commission will spend $51.3 million in the fiscal year starting September 1 on highway maintenance, $2.1 million more than in the current fiscal year. Average maintenance cost per mile will be $811.

• **Hoosiers look ahead**—Indiana's highway construction outlays will total $268.3 million in the next two years, says Gov. Matthew E. Welsh. The total excludes construction under way and $21.6 million worth of recent contracts.

• **New entry**—Joseph T. Ryerson & Son, Inc., Chicago-based manufacturer of reinforcing bars, entered the lift-slab business last week. It will use the Youtz-Slick method of erection.

• **Expansion overseas**—Bechtel Corp. of San Francisco, established a permanent company for operations in Australia and New Zealand. The organization, Bechtel Pacific Corp., Ltd., will be in Melbourne.

Equipment-Orders Rise Forecast

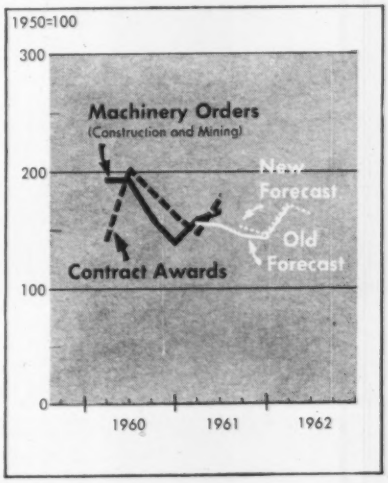
Construction and mining equipment manufacturers raised their market sights in their July forecast of orders for the full year. They reported to McGraw-Hill Economics Department that they expect new orders to drop only 10% below 1960; in their April forecast, the new-order volume prediction was a slightly more pessimistic 13% below 1960.

In all of last year, orders averaged 172 on the Construction and Mining Machinery Orders Index, which is based on 1950 as 100. This year, orders should hit a value of 154 on the index, according to the latest forecast. In the April forecast, order volume was expected to average out to 150 for the year.

And for 1962, manufacturers appear quite bullish. In April, they forecast new orders in next year's first quarter would top 1961's first quarter by 3%, with orders going to a value 162 on the index.

Now they expect orders in the first quarter to hit a value of 170 on the index, a rise of 8% over this year's first quarter.

The value of construction and mining equipment that will be produced for all of 1961 is estimated at $1.6 billion, according to the U. S. Department of Commerce's Business and Defense Services Administration. This would be about the same as produced in 1960. Annual production capacity of the industry is placed at $3 billion worth of machinery.



17 years of continuous operation... plant still has original engines!

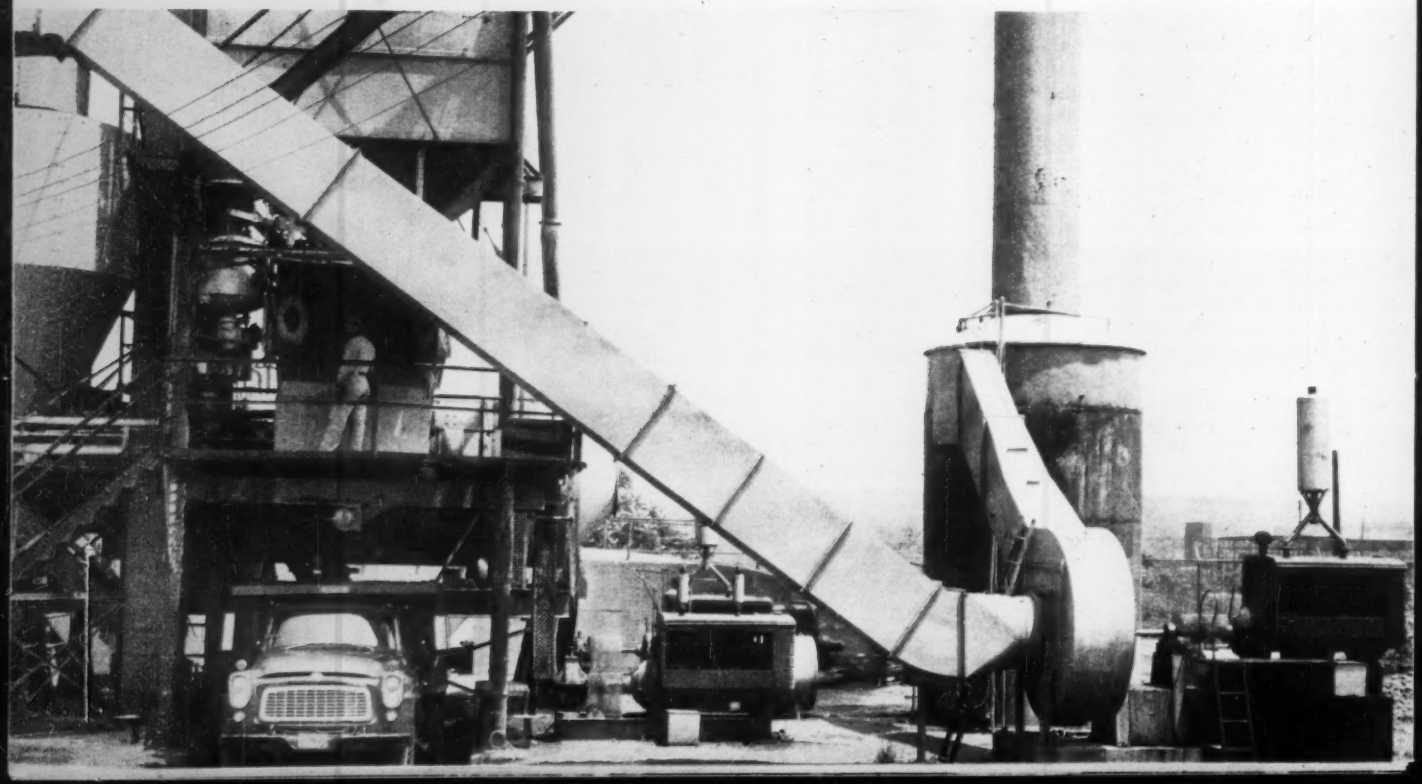
Here's another record of trouble-free International power on a heavy-duty construction job. Three 17-year-old International UD-18 diesel engines are still producing efficient power on Hot Mix Plant No. 1 for Kelley & Meyer Co., Youngstown, Ohio. One engine powers mixer, hot elevator and screen, another one drives the cold elevator and dryer, while the third powers the dust collector and 3-ft., 6-bladed fan. The company has 11 IH engines in operation, plus one standby unit, on four asphalt plants in Ohio and Pennsylvania.

"Years of experience with International engines has proven their ability to power a plant to maximum production with real day-in-day-out dependability," says Plant Superintendent Clyde Clabaugh. "These three old engines have put out over half a million tons of hot mix, and all they ever require is normal maintenance. With a record like that, I personally think International power can't be beat!"

Contractors all over the country use dependable International engines for maximum efficiency on their construction equipment. You too, can profit from the many advantages in the full line of International's diesel and carbureted engines—16.8 to 385 max. hp. Call your International Engine Distributor or Dealer soon and find out how little it will cost you to power —or re-power—your equipment with International.

INTERNATIONAL®
ENGINES

International Harvester Co.,
180 North Michigan Ave., Chicago 1, Illinois
A COMPLETE POWER PACKAGE



Maintenance Work Starts a New Feud

Oil workers plan to fight the building trades' maintenance agreement with one of their own

One of the AFL-CIO industrial unions last month raked the construction industry over the coals for staking a claim to maintenance work.

At its Sixth Constitutional Convention, held in Chicago, Ill., the Oil, Chemical and Atomic Workers International Union (OCAW) adopted a resolution condemning contractors and construction unions, and calling for aggressive action to protect the union's jurisdiction.

The OCAW accused the building trades unions of piracy, and served notice that it will fight the construction industry's project maintenance agreement with similar tactics of its own. The union's big concern is loss of jobs for its own members and loss of its members to other unions.

Decrying the fact that many of the companies employing OCAW members have adopted the practice of maintenance by contract, the union said:

"In many, if not in most cases, there has been collusion between the contractors and various unions, particularly in the building trades unions, in the process of taking this work out from under our jurisdiction.

"It has been agreed between the industrial unions of AFL-CIO and the building trades unions of AFL-CIO that the maintenance of existing plants shall be the work of industrial union members, yet this agreement has been violated many times by the building trades unions.

"In their efforts to pirate away the work of our members, building trades unions have on many occasions, in collusion with maintenance contractors, undercut hard-won union conditions."

The collusion to which the OCAW apparently referred is the promotion of maintenance by contract by the Construction Industry Joint Conference, and the building trades' use of what is known as the "Project Agreement for Maintenance by Contract."

The OCAW concedes that the building trades are having some success in getting a greater share of maintenance work. "It is evident," the OCAW admits, "that it will not be possible to persuade our employing companies to refrain entirely from contracting maintenance work. Many employers are convinced that there are real advantages to them in contracting out maintenance work and are insisting on doing so."

To meet this situation, the OCAW has, it claims, signed contracts with maintenance contractors in a few cases, "thus assuring maintenance work for our members although they would be employed by contractors, not by the basic companies." It says the contracts have proven "satisfactory and beneficial."

It is against this background that the OCAW has now come up with a new contracting-out policy "based on existing facts which prevail, not the facts as we would like them to be." The policy, which will tend to sharpen the jurisdictional conflict between craft and industrial unions, is stated this way in the resolution adopted last month:

"1. We shall continue to urge the companies to perform all possible work by the use of regular company employees.

"2. Where companies insist on employment of outside contractors, we shall urge the companies to employ contractors employing OCAW members working under OCAW contracts.

"3. We shall endeavor to sign contracts of good provisions with contractors doing work in plants and facilities of companies within the jurisdiction of this union."

The building trades' agreement against which this is aimed is a national, master labor agreement available to contractors who secure maintenance contracts. It was developed by the building trades' General President's Committee.

The agreement covers all members of any of 13 craft unions who may be employed by a contractor in performing a maintenance contract. It contains a no-strike clause and other provisions that seek to assure uninterrupted and economical performance, thus making it easier for contractors who use it to sell the idea of maintenance by contract. By the same token, it makes it easier for the construction industry to discourage industrial management use of no-contracting-out clauses in their labor contracts.

The 13 unions that have subscribed to the master maintenance agreement are the asbestos workers, boilermakers, bricklayers, carpenters, electrical workers, iron workers, laborers, operating engineers, painters, plasterers, plumbers, sheet metal workers and teamsters.

The scope of the agreement is not limited to industrial firms. "It is equally applicable," according to one general president, "to maintenance of projects like office buildings, shopping centers, hotels, and the like."

Last month, Peter T. Schoemann, president of the plumbers union and a staunch supporter of the maintenance agreement, reported that the agreement has been signed with about 20 contractors "for work at approximately 75 projects throughout the United States and Canada." Over 7,000 building tradesmen are now employed under the contract maintenance agreements, Mr. Schoemann said.

The present trend that promises to sharpen the rivalry for maintenance work, of course, is automation. The industrial unions hope—and the building trades fear—that industrial firms, unless induced to do otherwise, will put more and more production line workers on maintenance as automation eliminates other available jobs.

This head-on collision between the OCAW and the building trades is part of the critical problem the AFL-CIO is still trying to solve. That is the problem of finding some equitable way to resolve these inter-union jurisdictional conflicts.

The AFL-CIO is hopeful that it can come up with a solution this year. Members of a special AFL-CIO committee working on the problem have reportedly reached agreement on the draft of an arbitration plan that will be presented to the Executive Council in October.

Three-Year Labor Pact Ends Long Iowa Strike

A nine-week strike by laborers in Davenport, Iowa, has been settled on the basis of a three-year labor contract.

The new agreement provides for a 33-cent wage increase payable in four installments—8 cents retroactive to July 26, 4 cents September 1, 11 cents next May 1 and 10 cents in May, 1963.

The laborers failed to get a hiring hall provision they sought.

Davenport bricklayers, meanwhile, have settled for annual 10-cent pay boosts in a three-year contract. Teamsters have won increases of 12½, 12½ and 10 cents over the next three years.

Hiring of Only Local Men Is Legal

Trial examiner says Landrum-Griffin permits use of local residence as an objective hiring criterion

Preferential hiring or firing based on local residence is not a violation of the federal labor law, at least in the construction industry, as long as such an objective criterion is not intended or used as a ruse to create a closed shop.

That is the conclusion reached by a National Labor Relations Board trial examiner in a case that arose on the Erie, Pa., Central Mall project.

The examiner, Stanley Gilbert, took the position that discrimination in hiring is not outlawed except when it is intended to give union members preferential treatment. He relied on the construction industry amendments in the Landrum-Griffin law and on the U. S. Supreme Court decision that knocked down the NLRB's Mountain-Pacific restrictions on union hiring halls.

The case is significant because it is one of the first on the preferential hiring provisions of the 1959 law. And it helps to clarify the legal restrictions that add up to the ban on the closed shop.

The question before Mr. Gilbert was whether the bricklayers local union in Erie had so rigged the contractor's hiring of bricklayers as to create a closed shop, making it impossible for anyone but members of the local union to get the jobs on the Central Mall project, which is a complex of some 23 stores.

What the contractor had done was to agree last winter to a union request that Erie, or local, bricklayers be given the first crack at available jobs. The union was concerned about local unemployment and about the fact that cold winter weather had drastically curtailed the amount of brickwork being done on the project.

The contractor accordingly hired only Erie bricklayers, all of whom happened to be members of the local union. Three men who belonged to sister locals, and who had been working on the project with permits from the Erie local, were frozen out of their jobs during the winter slowdown. They filed unfair labor practice charges, claiming that the Erie local violated the law by causing the contractor to hire only members of the local union.

In rejecting the charge, the trial examiner said he was convinced that the local union, in urging preference for local men, was not using it as a pretext to secure preference for its members. The net result, he said, is that the hiring criterion was the legal, objective one of residence in the area, not the contrived, illegal closed shop one of membership in the union. It was merely a coincidence, he felt, that all local bricklayers on the job were members of the local.

Mr. Gilbert said the residence criterion is permissable under the preferential hiring provisions of the Landrum-Griffin law, which legalizes agreements granting hiring priority on the basis of training or experience, or on length of service with the employer, in the industry or in the geographical area.

Relying on a Senate report on the law, Mr. Gilbert noted that the criteria spelled out in the statute "are not intended to be a definitive list but to suggest objective criteria which shall be applied without discrimination."

The only kind of hiring discrimination the law forbids is that which encourages or discourages membership in a union. In determining whether a particular kind of discrimination falls within the prohibition, Mr. Gilbert said, one must look, as the Supreme Court did in the Mountain-Pacific case, to the "true purpose or real motive." In that case, decided last April, the court said discrimination must be tested by what was intended and by what in fact happened.

"In the absence of a finding herein that the motive of respondent (the union) was to seek job preference for its members," Mr. Gilbert concluded, "I do not believe it appropriate to find a violation of the Act, even though respondent's conduct resulted in a benefit to its members."

Labor in Brief . . .

• **Pay boosts of electrical workers**—The International Brotherhood of Electrical Workers reports that wage increases of electricians average 13.5 cents an hour under construction labor contracts negotiated during the first half of this year. Deferred increases due this year, it says, average 12.2 cents for inside wiremen and 12.8 cents for outside electricians.

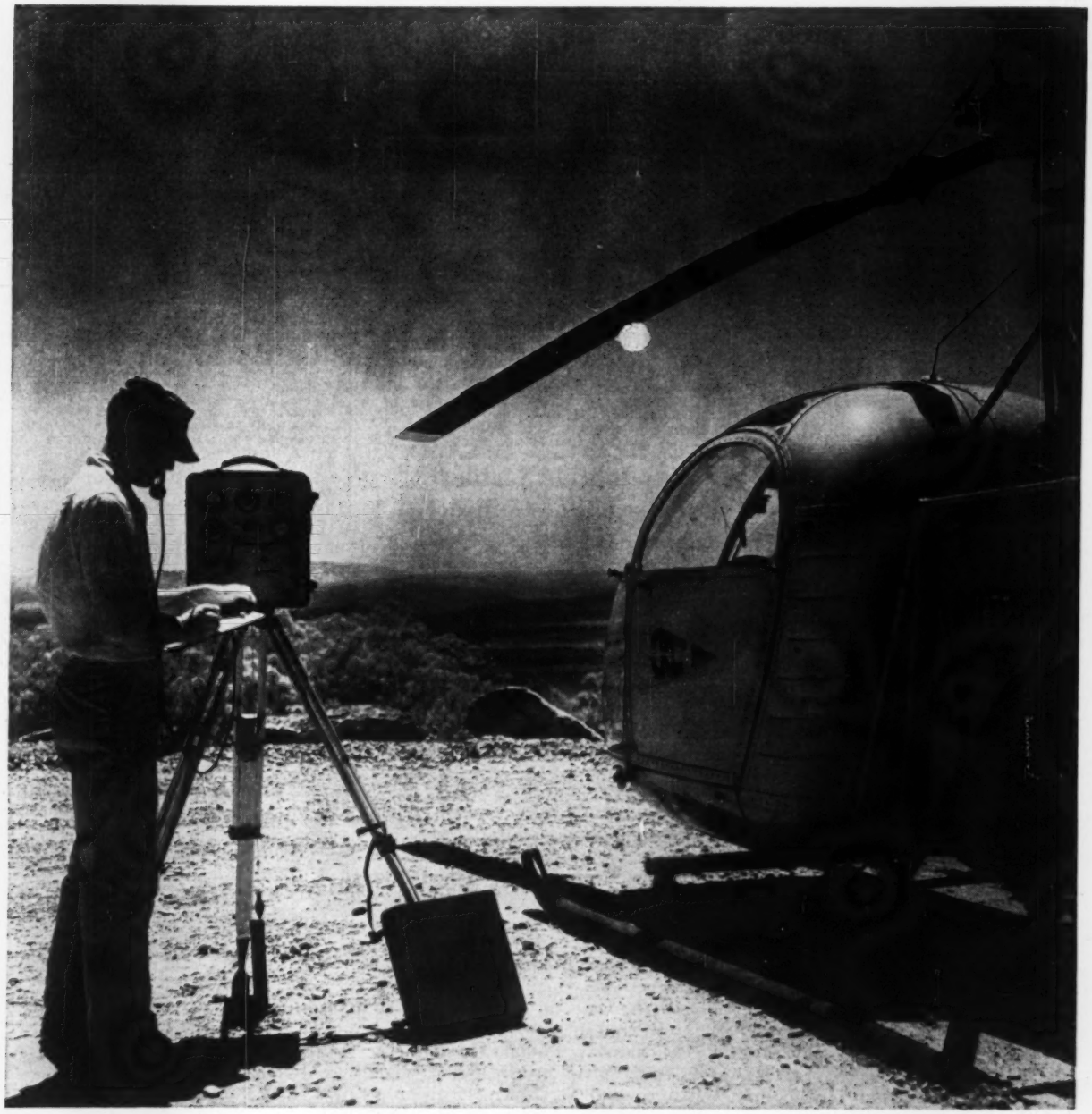
• **An "unsafe" law**—A New Jersey board of inquiry studying construction fatalities has reported that existing state law prevents the use of an electronic, vocal system of communication to control the movement of hoists. It said such a system would be much safer and more reliable than bell-ringing, which is the only type now authorized by New Jersey law.

• **Unemployment** – Unemployment fell seasonally last month to 4,542,000 but the seasonally adjusted rate of unemployment remained at 6.9%—about the same as for the last nine months. Unless the situation improves, Labor Secretary Arthur Goldberg said, it may generate a push next year for public works legislation.

• **Will others want it, too?**—The new labor contract between American Motors and the auto workers will divert 15% of profits before taxes, after deducting 10% of the stockholders' equity, to the workers—10% in cash or benefits, 5% for purchase of AM stock for the workers. Employees will also get paid for short workweeks—one-half of base pay for each hour not worked under 40.

• **Right to work**—Nebraska has tightened up its right to work law by passing new legislation that specifically outlaws agency shop clauses in labor contracts. Under such clauses, workers who refuse to join the union are required to pay the equivalent of union dues to help defray the cost of union representation.

• **Apprenticeship** – A new program aimed at elimination of racial discrimination in apprenticeship training has been launched by the Committee on Apprenticeship Opportunities for Minority Groups of the California Conference of Apprenticeship. Special advisory boards will be set up to establish better liaison between Joint Apprenticeship Committees and minority groups.



Helicopter service courtesy Coast Rotors.

"Electrotape Leapfrog" – world's fastest surveying

"Electrotape Leapfrog" slashes days, weeks, and even months from the time once required to make precise distance measurements. Required to play: a helicopter and a pair of Cubic DM-20 Electrotapes. Order of play: 1. Helicopter flies Electrotape #2 from start point to first tie-point, up to 30 miles away. 2. While Electrotapes measure distance to first tie-point, helicopter flies back to start point. 3. Helicopter flies Electrotape #1 to second tie-point, leapfrogging first tie-point. 4. While Electrotapes measure distance between first and second tie-points, helicopter flies back to pick up Electrotape #2. And so on. Leapfrogging eliminates packing-in through difficult terrain, saves clearing underbrush. Priced at $6000 apiece, Electrotapes quickly pay for themselves by saving operating time and cost. Weighing only 25 pounds, the DM-20 is all-transistorized and provides numerical distance readout. For descriptive literature on Electrotape, write to Department **ENR-106.**

cubic
CORPORATION
INDUSTRIAL DIVISION
SAN DIEGO 11, CALIFORNIA • ROME, ITALY

Breach Stops Payments

A general contractor may withhold a progress payment to a subcontractor where the latter has breached the contract.

A Maryland court recently applied the rule in a case that stemmed from an accident on a housing project.

K & G Construction Company, Inc. was the owner and the general contractor. Harris & Brooks was subcontractor for some of the excavating and earth removal.

The subcontract required Harris to carry liability insurance against property damage. And it provided for progress payments to Harris, provided the necessary insurance was obtained. Harris complied with the insurance requirement.

During the course of the work, a bulldozer operator employed by Harris drove too close to one of the houses. A wall collapsed and other damage was done, amounting in all to $3,400. Both the subcontractor and the insurer refused to pay the damage. They claimed the subcontractor was not liable.

The general contractor then refused to make any further progress payments. Harris quit the job, which was taken over by another subcontractor at a price of $450 in excess of the original subcontract.

Litigation followed. The general contractor asked for damages and for the extra costs incurred. The subcontractor asked for the payments that had been withheld and for loss of profits.

The case was tried by a jury that brought in a verdict in favor of the contractor in the sum of $3,400, the cost of remedying the damage to the building, which judgment was paid.

The parties agreed that the contractor's claim for the excess cost of completing the work and the subcontractor's claim be tried by the court without a jury. The trial court found in favor of the subcontractor and granted it judgment in the sum of $2,824.50, the amount covering payment for the work that had been performed plus estimated loss of profits resulting from failure on the part of the contractor to make the progress payments.

The contractor appealed. The judgment was reversed and the claim of the subcontractor dismissed. The general contractor was also granted judgment for the additional $450, the increased cost of having another contractor complete the work. The basis of this decision was that the contract required the subcontractor to perform the work in a workmanlike manner and in accordance with best practices. The performance of this obligation the court said, was a condition precedent to its right to the progress payments.[1]

(1) K & G Construction Company v. Harris & Brooks, 164 A. 2d 451, Court of Appeals of Maryland, October 24, 1960.

Surety Is Held Liable For Breach of Contract

The language of a performance bond may be such as to indemnify a landowner against damages caused by a breach of contract by the general contractor.

That is the way a bond was interpreted by a New York court in a suit by a subcontractor against a landowner for damages for breach of contract by the general contractor. The landowner counterclaimed against the surety of the general contractor.

The bond provided, among other things, that if the general contractor should perform all matters required by the contract for the construction of a filling station for the landowner and should reimburse the landowner for any loss, which the landowner might sustain by reason of the contractor's default, the bond should be void. But if otherwise, the bond should remain in full force and effect.

The matter was submitted to a referee who determined that the bond was to cover the cost of materials only. The court refused to accept this conclusion, holding that the bond also was to indemnify the landowner against damages caused by a breach of contract by the general contractor. This determination was affirmed on appeal.[1]

(1) Schmidt Bros. Tile Co. v. Duggan, 198 N. Y. S. 2d 98, N, Y. Supreme Court, Appellate Division, March 2, 1960.

These summaries of court decisions are prepared by I. Vernon Werbin, Esq., New York attorney and licensed professional engineer, who is author of the following books published by McGraw-Hill Book Company, Inc.: *Legal Phases of Construction Contracts; Legal Guide for Contractors, Architects and Engineers;* and *Legal Cases for Contractors, Architects and Engineers.*

OFFICIAL PROPOSALS

Bids: November 1, 1961

Kingdom of Thailand
Royal Irrigation Department
Bangkok, Thailand

INVITATION FOR BIDS—No. YS-4-8
STEEL REINFORCEMENT BARS

The Royal Irrigation Department of the Kingdom of Thailand hereby invites sealed written bids for furnishing and delivery either f.o.b. Contractor's shipping point or c.i.f. Bangkok Wharf, Kingdom of Thailand for the Yanhee Multipurpose Project in accordance with the Contract Documents, Invitation for Bids No. YS-4-8, the following materials:

5160 metric tons of Steel Reinforcement bars, of selected diameter, to American Society of Testing Materials Standards, or equivalent, and to lengths of approximately 12 meters.

Bids will be opened at 10:00 A.M., 1 November 1961. Copies of Contract Documents, Invitation for Bids YS-4-8 may be obtained by qualified Bidders on written request on Bidder's letterhead, addressed to:

Royal Irrigation Department
Attention: Thai Liaison Engineer
c/o Engineering Consultants, Inc.
1901 South Navajo Street
Denver 23, Colorado

Each request must be accompanied by a check or money order made payable to the Royal Irrigation Department in the amount of U. S. $5.00 for each copy of the Contract Documents requested. The remittance is non-returnable.

M. L. Xujati Kambhu
Director General
Royal Irrigation Department
Kingdom of Thailand
Bangkok, Thailand

August 28, 1961

Bids: September 29, 1961

City of New Rochelle, N. Y.
Department of Public Works

1. Sealed bids will be received by the DEPUTY DIRECTOR OF PUBLIC WORKS of the CITY OF NEW ROCHELLE, N. Y., at the BUREAU OF ENGINEERING, 28 Wildcliff Drive, New Rochelle, N. Y., until 11:00 A.M. Eastern Daylight Time, September 29, 1961, for:

RECONSTRUCTION OF
STEPHENSON BROOK DRAIN & SANITARY SEWER
SECTION I
From Echo Bay to the NYNH&H Railroad
(Project No. 26-828-P1)
In The
CITY OF NEW ROCHELLE, N. Y.

in accordance with the Plans, Specifications and Contract Documents on file in the BUREAU OF ENGINEERING where they may be examined, beginning on SEPT. 1, 1961.

Principal Items of the work include:
Approximately 3025 L.F. Reinforced Concrete Box Culvert 16 x 11 ft.
Approximately 3300 L.F. 42" Diameter Sanitary Sewer
Approximately 1400 L.F. Assorted Sizes Drain Pipe
Approximately 15,000 S.Y. Bituminous Pavement

2. Each bid must be accompanied by a DEPOSIT in the form of certified check or cashier's check, made payable to the CITY OF NEW ROCHELLE, N. Y., in the amount of FIVE PERCENT (5%) of the total bid. Bid bonds or cash will not be accepted.

3. Copies of Plans, Specifications and Contract Documents may be obtained at the BUREAU OF ENGINEERING beginning at 9:00 A.M. September 1, 1961, upon payment of TWENTY DOLLARS ($20.00) in cash or Company check, for each set. The entire deposit will be refunded to bona fide bidders, and 50% will be refunded to non-bidders, upon return of all such documents in good condition within two weeks after the bidding date. Material vendors and others in the sub-contractor category will be considered "non-bidders" for the purposes of plan deposit refunds. If all such documents are not returned within the specified time, the entire deposit will be forfeited.

4. The City reserves the right to reject any or all bids.

ARTHUR F. JONAS, P.E., L.S.
DEPUTY DIRECTOR OF
PUBLIC WORKS

Date: August 31, 1961

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.70 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

Bids: September 21, 1961

New York State Dept. of Public Works Contracts U. S. 75 & 76

NOTICE TO BIDDERS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Barge Canal Improvement Law and Highway Law, sealed proposals will be received, until 10:30 A.M., D.S.T., September 21, 1961 by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

Contract U. S. 75 for Lowering Sills and Aprons, Raising Towers, Electrical Work and Misc. Work at the East Rome Guard Gates, Rome, Oneida County, New York

and

Contract U. S. 76 for Lowering Sills and Aprons, Raising Towers, Electrical Work and Misc. Work at the West Rome Guard Gates, Rome, Oneida County, New York

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 12th Floor, The Gov. Alfred E. Smith State Office Bldg., Albany, New York.

(b) Mr. William Mende, Principal Building Engineer, Department of Public Works, 270 Broadway, New York City, New York.

(c) District Engineer, N.Y.S. Dept. of Public Works, 109 No. Genesee St., Utica, New York.

The deposit for Plans and Proposal Forms for each of these contracts is $10.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's Estimates of Cost for Contracts U. S. 75 and U. S. 76 are confidential and will be made known after all bids have been opened.

Proposals for Contract U. S. 75 and Contract U. S. 76 must be submitted in a separate sealed envelope for each contract with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by a certified check, payable to the order of the "State of New York, Department of Public Works" for the sum of five percentum, (5%) of the bid. The retention and disposal of the bidding checks, the execution of the contracts and bond shall conform to the provisions of the Barge Canal Improvement Law and to the Highway Law as set forth in "Instructions to Bidders" in the contract specifications.

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPERINTENDENT OF PUBLIC WORKS

Bids: September 14, 1961

Delaware River Port Authority of the Commonwealth of Pennsylvania and the State of New Jersey

Administration Building
Camden, New Jersey

BENJAMIN FRANKLIN BRIDGE
CONTRACT NO. 32-B

Sealed bids will be received for Structural Steel for Alterations and Additions to Administration Building, Northwest Corner of Linden and Sixth Streets, Camden, New Jersey, known as Contract No. 32-B at the office of the Director of Engineering of the Delaware River Port Authority, Administration Building, Benjamin Franklin Bridge Plaza, Camden, New Jersey, until 2:00 P. M., Eastern Daylight Saving Time, Thursday, September 14, 1961, at which place and time they will be publicly opened and read by the Authority.

A more complete description of the work and full information for the bidders is given in the Contract Documents and Specifications for this Contract, which may be obtained upon deposit of $10.00, which deposit will not be returned.

Each proposal must be accompanied by a certified check in the amount of $5,000, payable to the Delaware River Port Authority and drawn upon a National or State Bank or Trust Company having an office or place of business either in Philadelphia, Pennsylvania, or Camden, New Jersey, together with a financial statement and a list of comparable work successfully completed, all of which must not be enclosed with the sealed bid but handed in separately. The surety's consent must be shown. The bidder to whom the Contract is awarded will be required to furnish a Performance and Labor and Materialman's Bond in the sum of 100 percent.

The Authority will afford prospective bidders an opportunity to inspect the site of the work.

The Authority reserves the right to waive any informalities in the bids received, to reject any or all bids and to award the Contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
C. H. McWILLIAMS
8/28/61 SECRETARY

Bids: September 14, 1961

New York State Contract Spec. No. SM-186

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 a.m., Advanced Eastern Standard Time, on September 14, 1961, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON SLINGERLANDS BY-PASS, ALBANY COUNTY, WHICH CONSTITUTES CONTRACT SPEC. NO. SM-186.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York.

(b) Mr. Frank J. Fuller, Jr., District Engineer, New York State Department of Public Works, 353 Broadway, Albany, New York.

(c) Mr. William Mende, Principal Building Construction Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. Refunds of deposits for plans, specifications and proposals will be made *only* in case the deposits of individual sets are $10.00 or more, per Chapter 835, Laws of 1960.

The Engineer's Estimate of cost for this work is $52,100.00.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Department of Public Works" for the sum of $2,750.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPERINTENDENT OF PUBLIC WORKS

Many contractors depend entirely upon the

OFFICIAL PROPOSAL COLUMNS

of

Engineering News-Record

for Opportunties to bid.

They might not see your announcements if printed elsewhere

You undoubtedly want their bids on your contracts. Make sure of them on your next contract.

OFFICIAL PROPOSALS

OFFICIAL PROPOSALS

AUSTRALIA

SNOWY MOUNTAINS HYDRO-ELECTRIC AUTHORITY

Tenders are invited for a Lump Sum and Schedule of Rates Contract for furnishing labour and material and performing all work for the design and construction in New South Wales, Australia of:—

CONTRACT NO. 20,065—MURRAY I PRESSURE PIPELINE

Murray I Pressure Pipeline comprises two steel pipelines each approximately 5,300 feet long and of largest diameter 13 feet 9 inches, together with distribution manifolds connecting the pipelines to eight Francis turbines. The maximum design head is approximately 1,900 feet. The design and construction of anchor blocks, piers and other ancillary works are included in the contract. Also included is the supply and delivery of approximately 900 feet of steel tunnel liner sections 13 feet 9 inches in diameter.

The successful tenderer will be required to undertake the whole of the responsibility for the design, fabrication, erection and testing of the pipelines and of all necessary ancillary works including all design and construction excepting preliminary excavation of the pipeline bench. Preliminary excavation of the pipeline bench has been carried out by the Authority and the bench will be available for inspection by intending tenderers. Concrete aggregate for the work will be supplied to the contractor at a fixed price per cubic yard.

LOCATION

The site is in the Snowy Mountains Area in the south-eastern part of the State of New South Wales, Australia, at approximately longitude 148°E and latitude 36°S. The elevation of the site varies between 2,000 and 4,000 feet above sea level.

RELATION TO OTHER WORK

Concurrently the Authority will have under construction the Murray I Pressure Tunnel and the Murray I Power Station, the sites of which are adjacent to the site of the pipeline. The Contractor for Murray I Pressure Pipeline will be required to deliver the steel tunnel liner sections to the Contractor for the Murray I Pressure Tunnel by a specified date. Concreting-in of the distribution manifolds on the pipeline will be carried out by the Power Station Contractor and the Contractor for the Pressure Pipeline is required to have the manifolds ready by specified dates for this concreting to proceed.

TENDER DOCUMENTS

Tender Documents consisting of the Form of Tender, Conditions of Tendering, General Conditions of Contract, Draft Form of Agreement, Schedules, Table of Estimated Quantities and Amounts, Specifications and Drawings will be available on 21st August 1961 and may be obtained by prospective Tenderers on payment of £10/-/-Australian or $22.50 U. S. per set on application to:—

Australian High Commissioner,
Royal Bank Chambers,
100 Soarks Street,
OTTAWA, ONTARIO, CANDA.

Australian Consulate-General,
International Building,
Rockefeller Centre,
636 Fifth Avenue,
NEW YORK, N. Y.
U.S.A.

Australian Consulate-General,
[illegible] Kearney Street,
SAN FRANCISCO, CALIFORNIA,
U.S.A.

Liaison Officer,
Snowy Mountains Hydro-electric Authority
c/—United States Bureau of Reclamation,
Federal Center,
DENVER, COLORADO,
U.S.A.

Four additional sets of documents for purposes of tendering will be provided free of charge at the time of inspection of the site.

PRELIMINARY DEPOSIT

A preliminary deposit of £3,000/-/- Australian or $6,750.00 U. S. payable at Sydney, New South Wales, Australia, must be lodged with the tender for the contract.

INSPECTION OF THE SITE

Tenderers are required to inspect the site of the works and should communicate with the Snowy Mountains Authority, Cooma, New South Wales, Australia, regarding detailed arrangement.

GENERAL INFORMATION

For its own purposes the Authority has compiled certain information regarding the geology, hydrology and meteorology of the region and general information concerning local conditions. The information is not part of the tender documents. This information will be made available to Tenderers when they inspect the site.

SPECIAL QUALIFICATIONS REQUIRED OF TENDERERS

Consideration of tenders is dependent upon Tenderers having a background of successful achievement in the execution of the design, manufacture and erection of similar large pressure pipelines and possessing technical and other resources necessary to complete the work successfully within the contract period.

SUBMISSION OF TENDERS

Tenders for the contract must be submitted in duplicate in accordance with the Conditions of Tendering, enclosed in sealed envelopes appropriately endorsed with the contract number and name of the works tendered for, addressed to:—

The Business Manager
Snowy Mountains Hydro-electric Authority
Post Office Box 332
COOMA NORTH, N.S.W., AUSTRALIA

The tenders must be lodged in the Tender Box at Head Office of the Authority at Cooma or be sent by prepaid post in time to be delivered in ordinary course of mail by 12.00 noon on Monday, 5th February 1962.

K. See, Business Manager

OFFICIAL PROPOSALS

District of Columbia—Sewer Construction—Dept. of Sanitary Engineering, Office of the Potomac Interceptor, August 24, 1961. UNIT #9, THE NICHOLS SEGMENT and RIVER CROSSING of the POTOMAC INTERCEPTOR SEWER, near Dranesville, Fairfax County, Virginia (Invitation No. C-6228-S), Contract No. DCF C-18965, consisting of the following: OPEN CUT CONSTRUCTION: 2,000 lin. ft. 72" and 9,346 lin. ft. 66" dia. reinforced concrete sewer pipe, incl. manholes and vent structures. OPEN CUT RIVER CROSSING: 3,200 lin. ft. 54" dia. reinforced concrete sewer pipe encased in concrete. (Wage rates have been predetermined by the Department of Labor). Bid forms, plans and specifications are now available from Supervisor, Bid & Contract Division, Procurement Office, D. C., Room 404, 499 Penn. Ave., N.W., upon deposit of a certified check for $50.00 per set, payable to D. C. Treasurer (Phone NA 8-6000, Ext. 448). SEALED BIDS to be opened 3:00 PM, EDT, September 20, 1961, in Room 424, 499 Penn. Ave., N.W.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5657) will be received at Collbran, Colorado, until 10 a.m., Mountain Standard Time, September 28, 1961, for furnishing labor and materials for Relocation and Modification of Structures on Highline Canal and Orchard Mesa Canal, Grand Valley Project, Colorado. Location near Palisade, Colorado in Mesa County. Principal items are 234,000 cu. yds. excavation; 185,000 cu. yds. compacting embankments; 1,676 cu. yds. concrete; and other work. Completion time 180 days. For particulars, address Bureau of Reclamation, P. O. Box 360, Salt Lake City, Utah; P. O. Box 396, Collbran, Colorado; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

CONTRACTORS
WATCH
THIS SECTION

for New Projects

Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

FOR SALE
8—NEW 36" WF BEAMS—ASTM A337
38'11" to 42'3" long—245 to 300 lbs.
F.O.B. Truck—Long Island City, New York
Bids are due 3:00 P.M. Monday, September 18, 1961
For bid papers write or phone:
THE PORT OF NEW YORK AUTHORITY
Purchase & Administrative Services Dept.
111—8th Ave., New York 11, N. Y.
Tel: AL 5-1000, Ext. 206

EMPLOYMENT NATIONAL COVERAGE OPPORTUNITIES

DISPLAYED RATE

The advertising rate is $45.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured 7/8" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

SEPT. 21ST ISSUE CLOSES SEPT. 11TH

UNDISPLAYED RATE

$2.70 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Position Wanted ads take ½ of above rate.

Box numbers—count as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to agency Commission.

Send NEW Ads and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36

ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 645 N. Michigan Ave.
SAN FRANCISCO 11: 255 California St.

• POSITIONS VACANT

Structural Engineer-Midwest consulting firm seeks Ph.D. to design complex steel structures, reinforced and prestressed concrete. Preference will be given to applicants with practical experience. Permanent position with established firm in business since 1929. Moving expenses paid. Send resume, including education, experience, and personal qualifications to P-6245, Engineering News-Record.

Sanitary Engineer. Opportunity to assume overall supervision and client contact on sanitary projects for long-established midwestern consulting engineering firm. Experience in all phases of sanitary work is desired. Send complete resume of experience and qualifications. Replies held in strictest confidence. Our employees know of this advertisement. P-7178, Engineering News-Record.

Put Yourself in the Other Fellow's Place

TO EMPLOYERS - TO EMPLOYEES

Letters written offering Employment or applying for same are written with the hope of satisfying a current need. An answer, regardless of whether it is favorable or not, is usually expected.

Mr. Employer, won't you remove the mystery about the status of an employee's application by acknowledging all applicants and not just the promising candidates.

Mr. Employee you, too, can help by acknowledging applications and job offers. This would encourage more companies to answer position wanted ads in this section.

We make this suggestion in a spirit of helpful cooperation between employers and employees.

This section will be the more useful to all as a result of this consideration.

Classified Advertising Division

McGraw-Hill Publishing Co., Inc.

330 West 42nd St., New York 36, N. Y.

• POSITIONS VACANT

Excellent Opportunity—Wanted young, ambitious, graduate civil engineer with minimum of five years experience in all phases of estimating. Will assist successful young, chief estimator for growing East-West Coast construction company. Submit resume including salary, references and availability to P-7256, Engineering News-Record.

Civil Engineer for Overseas Work with design experience to head civil department. Age thirty to forty preferred. Top salary and living allowance for two year assignment. Send resume and photograph to P-7306, Engineering News-Record.

Engineer, Structural — Permanent position with Consulting Civil Engineering firm in upstate New York. College graduate. Send resume including education, experience, personal qualifications and salary desired. P-7285, Engineering News-Record.

Graduate Engineer, Estimator and Superintendent for heavy construction-bridge and dam construction. Location Ohio and Pennsylvania. P-7245, Engineering News-Record.

Permanent openings for Resident Engineers experienced in supervision of construction of large steam power plants and/or high-voltage transmission lines. Degree and registration desirable. Excellent opportunity with consulting engineering firm. Please send resume of education and experience to P-7228, Engineering News-Record.

Openings for recent Civil Engineer graduates with military obligations completed who desire to learn the construction business. Must be ambitious, aggressive, dependable, use no intoxicants, willing to start in the field on industrial buildings, defense construction, heavy construction, and willing to move. Preferably single. We operate throughout Kansas and adjacent states; offer excellent opportunity for advancement. Martin K. Eby Construction Co., Inc., P. O. Box 1679, Wichita, Kansas.

Overseas Managers. Long established U. S. consulting engineering firm is seeking engineering graduates to assume positions as overseas Branch Managers. Positions require administrative and management skills, together with experience in design and construction work. Age should be in range of 35 to 50 years. Excellent opportunity for qualified individuals to grow with expanding overseas operation. Send resumes covering personal background to P-7380, Engineering News-Record.

Superintendent Experienced in gas and telephone line construction—Eastern location. P-7196, Engineering News-Record.

City of Arcata has openings for: City Engineer, Calif. Regis. C.E., exper. including muni. pub. wks, water and sewer systems, $600-$750, starting salary dependent upon experience. Asst. City Engineer, Grad. Engr., E.I.T., office and field work, pub. wks. exper. preferred, $500-$600. Live and work in the heart of the Redwood Empire College town, modern schools, equable climate. Apply City Mgr., City Hall, Arcata, Calif.

Superintendent of Rigging—Capable of full responsibility for customer contact, estimating, and supervising. Large Middle Atlantic region rigging contractor—domiciled in Philadelphia, Pa. Forward resume of experience, education and background, together with recent photograph. Salary and fringe benefits commensurate with ability and results produced. P-7350, Engineering News-Record.

Sanitary Engineer — experienced Sewage Treatment Plant Design. Permanent position in Connecticut. Send resume, New Haven, P. O. Box 1669.

• POSITIONS VACANT

Engineers experienced in design of water and sewage projects. Location, Ohio. Send complete resume and salary requirement. P-7218, Engineering News-Record.

Water Supply Designers (3) Reg. P.E.'s high salary, subsistence, bonus and other fringe benefits. Overseas assignment 18 months. Send Resume: Brown Engineers, 10 Columbus Circle, New York 19, N. Y.

Estimator—experienced in all types of excavation, and concrete structures. Expanding company, location in East. Please send resume. P-7396, Engineering News-Record.

Highway Junior Engineers for State of Connecticut Highway Department. Variety of jobs in several areas including surveying, construction, designing, special engineering investigations. Need engineering degree and 2 years' employment in field or office engineering. Starting salary: for M.S. in C.E., $5760; for B.S. in C.E. $5520; for others, $5040. Complete benefits; excellent working conditions; many promotional opportunities; facilities for part time graduate study. Write to Robert G. Mack, State Personnel Department, 405, State Office Building, Hartford, Connecticut.

Mechanical Engineer thoroughly familiar with heating airconditioning and plumbing. Attractive opening for qualified men. Write giving full details and qualifications. P-7417, Engineering News-Record.

Electrical-Mechanical Senior Specifications Writer for New York consulting engineering firm. Estimating experience desirable. P-7421, Engineering News-Record.

Estimator wanted for Mid-West General Construction Company. Write stating experience, job qualifications, previous employment and age. All replies will be confidential. P-7426, Engineering News-Record.

Engineer, civil, to take charge of estimating for well-established N.Y.C. and L.I. building contractor. P-7432, Engineering News-Record.

• EMPLOYMENT SERVICES

"NER" describes hundreds of $7,000-$35,-000 Executive job openings monthly. Write for free copy. National Employment Reports, 105 W. Adams, 830-B, Chicago 3.

• POSITIONS WANTED

Chief Estimator now employed desires connection in South—25 years experience building & heavy construction—best references—available reasonable notice to present employer. PW-7255, Engineering News-Record.

Resident Manager-Craft, Field Superintendent. 22 years supervisory and advisory experience industrial type construction domestic, Europe, Middle and Far East. Refinery, steam generating, pulp, atomic energy, nuclear research reactors etc. Capable administrator, personnel, labor relations, contract administration. Strong background piping, instrumentation, mechanical. Complete second Middle East contract. Available overseas only. PW-7309, Engineering News-Record.

General Supt.-Project Manager. 20 years experience heavy construction—expressways, toll roads, airports, dams. Can handle all phases work from preliminary bid investigation through final estimate. PW-7278, Engineering News-Record.

(Continued on the following page)

HYDRAULIC ENGINEERS

Mechanical–Reports Specifications

Supervisory Design Engineer

Major design and supervision of design for dams, power plants, canals and other hydraulic works. Must be top man, minimum of ten years experience, capable of directing and producing work.

Hydraulic Design Engineers

Planning, investigations, design of dams, power plants, canals and other hydraulic works. Minimum of five years experience. Several positions available.

Mechanical Engineer

Design of large gates, valves, power plant mechanical equipment and related work on hydraulic projects. Some experience desirable.

Reports and Specifications

Engineer, Civil or Mechanical, for preparation of reports and/or specifications for hydraulic projects. Minimum of five years experience.

All positions are in our Denver office. Salary commensurate with ability and experience including excellent employee benefits. Submit complete resume with references and salary requirements to:

Tipton and Kalmbach, Inc., Engineers
831-14th Street
Denver 2, Colorado

Construction Economist

SRI has creative opportunities for an Engineer or Architect to analyze current business problems and develop new economic research programs in the residential and low-rise non-residential construction business. The work requires knowledge of building materials and designs and strong industry contacts. A graduate degree in Economics or Engineering plus 5 years of industry experience is required.

If these economic studies interest you, send your resume to W. E. Pedersen, Professional Employment Manager.

STANFORD RESEARCH INSTITUTE
Menlo Park California

PRECAST WALL PANELS

A challenging opportunity for experienced production supervisor. Growing wall panel plant needs capable foreman to be trained for plant superintendent. State age, experience and salary expected.

All replies will be held strictly confidential.

Please write:
Mr. Lloyd M. Parker
District Manager

AMERICAN-MARIETTA COMPANY
Concrete Products Division
P. O. Box 6833, Memphis, Tennessee

PLANNING ENGINEERS

Must have broad background in the planning of river control works, drainage, and highways. Should be familiar with project and regional economic analyses. Fifteen to twenty years experience necessary. Good salary. Fringe benefits. There will be some foreign travel. Please send complete resume of experience to Personnel Manager.

HARZA ENGINEERING COMPANY
400 West Madison Street. Chicago 6, Illinois

MANAGER MACHINERY SALES

Equipment engineer needed for managerial position with firm producing custom built equipment for construction and mining. Experience in or knowledge of fabrication, sales, design. California location. Send photo and resume.

P-7370, Engineering News-Record
255 California St., San Francisco 11, Calif.

ENGINEER DESIGNER

Permanent career opportunity for qualified engineer experienced in design and operation of aggregate plants, central mix concrete plants, and related materials facilities. East coast location with multiplant operator.

P-7360, Engineering News-Record
645 N. Michigan Ave., Chicago 11, Ill.

HIGHWAY BRIDGE DESIGNERS

For work in northern Illinois.
Minimum 5 years experience.
Usual Benefits — Permanent.

Maccabee, Campbell & Assocs.
173 W. Madison St., Chicago 2, Ill.

DETAILER—REINFORCING STEEL

MUST BE COMPETENT—
PERMANENT—GOOD PAY—
LOS ANGELES AREA—

P. O. BOX "9" GLENDALE, CALIF.

RESIDENT ENGINEER

experienced as Engineer's representative in supervision of construction of major bridge. Project includes pile foundations, open-dredged caissons and pier construction, structural steel superstructures and concrete deck.

Only applicants with previous experience in responsible capacities in this field will be considered. Registration will be required. Location South. Submit resume, references, salary requirements and photo to

P-7371, Engineering News-Record
645 N. Michigan Ave., Chicago 11, Ill.

• *POSITIONS WANTED*

(Continued from preceding page)

Canadian draftsman 34, 15 years experience Municipal, Topo, Mapping. Desires permanent employment San Francisco area. Requires sponsor. John LeSueur, 1068 Burnaby St., Vancouver 5, B. C., Canada.

Civil Engineer, registered, BSCE, 30—desire position as City Engineer or Director of Public Works. Presently Engineer in Public Works. Experience in highways, bridges, municipal works, land development and surveys. Resume on request. PW-7339, Engineering News-Record.

Graduate Engr.—Age 33—10 years experience all phases of construction seeks challenging position in construction management with opportunity for advancement and growth. PW-7379, Engineering News-Record.

Geologist Engineering Miner—30, family, willing to relocate. Exp. in design and drafting of highways & bridges, subdivisions including calculating, san. sewer, profiles and water systems. Supervision of bridge, water well drilling and highway construction. PW-7356, Engineering News-Record.

Project Manager—age 32 wants assignment overseas. Wide experience on Supervision and Inspection contracts. PW-7376, Engineering News-Record.

Estimator—Manager, Civil Engineer. 12 yrs. experience in all phases of sewer, water and paving projects. Desires to relocate in East. Salary min. $10,000. PW-7353, Engineering News-Record.

Supt. or General Foreman—age 43—over 18 years experience highway construction supervising earthmoving equipment, excavating, drainage. Know men, methods and cost. Available at once. A-1 references. PW-7368, Engineering News-Record.

Construction Engineer — Civil: Seventeen years broad experience in office and field management, estimation and superintendence in commercial, industrial and housing fields. Desires responsible position with growth contractor in Kansas City or Northwest Mo. areas. PW7388, Engineering News-Record.

Structural Engineer, M.S., P.E., experienced in industrial, power, chemical plants, bridges and heavy foundations, desires responsible position with Engineering or Architectural firm in New York. PW-7364, Engineering News-Record.

Superintendent of Equipment or Maintenance, 35 with 16 years experience, capable of setting up and supervising the installation of a repair and maintenance program, including cost, records, preventive maintenance and etc. relating to all types of heavy construction equipment. Available in Sept. U. S. or foreign. PW-7365, Engineering News-Record.

Retired Consultant, 55, very productive, adequate capital, seeks association with established engineering firm. New York City area. PW-7211, Engineering News-Record.

Construction Supt. Heavy Construction. PW-4482, Engineering News-Record.

Yng Woman, Admin. Asst., Gal Fri. Exec. Secty, considerable exper. all phases genl constr. office. All office skills-knowl. of plans, specs, & expedtg. Background in purch. includ. very hvy contact w/subs & suppliers. Excelnt. knowl. subcontracts. Faml w/biddg procedures, requisitions & submission shop dwgs., etc. Prefer NYC (Manhattan) office. PW-7277, Engineering News-Record.

Executive: Experienced Genrl. Manager, hvy, bldg & mech const, Govt Contracts, Atty, Acct, Adm, employed. PW-7407, Engineering News-Record.

(Continued on opposite page)

• POSITIONS WANTED
(Continued from opposite page)

Civil Engineer, 26, single—Exp. hwys, bridges & gen'l bldg. const., fluent French, overseas or anywhere. PW-7422, Engineering News-Record.

B.S.C.E., P.E., 33. 6 yrs. exp. sewers, hwys, insp. West, Southwest area. PW-7323, Engineering News-Record

Estimator, fifteen years experience, desiring connection with medium sized General Building Contractor to take full responsibility from bidding to completion, to handle buying, sub-contracts, change orders, shop drawing and progress flocharts. Prefer Southern states. PW-7410, Engineering News-Record.

Civil Eng. 25 yrs. exp: layout eng., field eng., and asst. const. eng. on hwys, locks, dams and buildings. Seeks job as field or layout eng. or party chief. Graduate. 57. $150. PW-7395, Engineering News-Record.

General Superintendent—Roads, dams, flood control. Engineering and estimating experience, willing to relocate. Reply to E. C., 953—4th Street, Morro Bay, California.

C.E. with 3 yrs. exp. all phases bldg. const. supervision, layout, estimating. Seek perm. position in suburban N. Y. area. PW-7427, Engineering News-Record.

Civil-Structural Engineer, age 45, European Diploma, M.S.C.E., good at reinforced concrete (any type). P.E. license in prep. Ambitious and reliable. References and resume on request. PW-7408, Engineering News-Record.

Project Manager, entire supervision & admin. estimating and methods, 24 yrs. exp. hvy-const. major projects U.S.&O.S. PW-7337, Engineering News-Record.

Registered Civil Engineer, 34. Twelve years Heavy Construction and Manufacturing with emphasis on purchasing, estimating/bidding, equipment design, customer contact, factory, office, project supervision. Prefer Midwest. PW-7405, Engineering News-Record.

Construction Equipment Salesman. 25 years experience Metropolitan New York territory. Desires selling position direct for manufacturer. PW-7431, Engineering News-Record.

Management, Design and Construction Engineer, BSCE, 34; P.E. in 4 states. Twelve years experience, last 6 years as Chief Structural & Civil Engineer on major commercial, institutional, industrial plants, public works, materials handling, and military projects. Desires position with major industry, consultant, or contractor. Salary $10,800-$12,000. Location, prefer South or Midwest. PW-7423, Engineering News-Record.

Civil Engineer, 28, BSE, MS in Construction Management and Structures, leading universities. Experienced in steel construction and fabrication, personnel supervision. Desires responsible position with construction or consulting firm. Will relocate. PW-7425, Engineering News-Record.

Draftsman seeks overseas position. High-speed, high-quality drawings. Enthusiastic, dedicated worker. Experience includes overseas. Excellent recommendations. PW-7424, Engineering News-Record.

Civil Engineer Calif. Regis. 11 yrs exp. wa-terworks facilities and industrial structures desires association with a national or international consulting, contracting or manufacturing firm in an administrative or design capacity. PW-7411, Engineering News-Record.

Instrumentman or Heavy Construction In-spector, 22 years experience, thoroughly familiar with Swiss and American instruments. PW-7415, Engineering News-Record.

Projects Manager. 20 years in heavy, com-mercial and industrial construction, complex mechanical installations, multi-story buildings. Capable of full charge from bid to completion. Can handle negotiation, budgeting, purchasing, subcontracting, cost control and craft supervision. PW-7418, Engineering News-Record.

Sales Engr—BME—with 14 yrs. experience in structural fabrication—presently manager of hwy sales—will relocate Middle West—Complete resume on request. PW-7359, Engineering News-Record.

SEARCHLIGHT SECTION
CLASSIFIED ADVERTISING

BUSINESS OPPORTUNITIES - EQUIPMENT - USED or RESALE

DISPLAYED RATES

The advertising rate is $25.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vert. on one col., 3 columns—30 in. to a page.

EQUIPMENT WANTED or FOR SALE ADVERTISEMENTS acceptable only in Displayed Style.

UNDISPLAYED RATES

$2.70 a line, min. 3 lines. To figure advance payment count 5 average words as a line.

BOX NUMBERS count as one additional line in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads.

ADDRESS BOX NO. REPLIES TO: Box No.
Classified Adv. Div. of this publication.
Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 645 N. Michigan Ave.
SAN FRANCISCO 11: 255 California St.

• BUSINESS OPPORTUNITIES

Exclusive Franchise offered to Professional Engineer. Proven money-making home inspection consulting service has received tremendous national publicity. New York Engineering firm founder with offices in Long Island, New Jersey, Chicago and Detroit, again expanding and offering franchises in other metropolitan suburban areas. Professional, graduate engineering background required. Little capital needed. Tell age, education, experience in first letter. Strictest confidence. BO-6348, Engineering News-Record.

CONSTRUCTION SUPERVISION
Exclusive Training Course by mail for top positions. Publishers Manual of Advanced Construction Management. Send postcard for details.
National Schools of Construction
Est. 1952
Satsuma, Florida

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-eighth year.
Write today, without obligation.
WILSON Engineering Corp.
College House Offices HARVARD SQ., CAMBRIDGE, MASS.

U.S. ARMY EE-8
Telephone fully reconditioned at 2 for $35.00. Any number can be used on same line. Wire 1¢ per ft. or $35.00 per mile. Write for complete telephone list.
TELEPHONE ENGINEERING CO.
Dept. ENR-971 Simpson, Pa.

SURVEYING INSTRUMENTS
USED • REBUILT • SALE
RENT • REPAIRING

INSTRUMENT REPAIR AND SALES
Midwest distributors for:
- **Fennel Instrument Corp. of America**
- **Buff & Buff Mfg. Co.**
- **David White Instr. Co.**
- **Eagle Instrument Co.**
- **Rolatape, Inc.**

PROMPT REPAIR SERVICE
FIFTY YEARS EXPERIENCE
All types Transits and Levels
INSTRUMENT SALES CO.
ILLINOIS
CHICAGO RICHMOND
4528 W. Lawrence Ave. TECHNICAL DIVISION
PHONE: KIldare 5-7777 PHONE: 2153

WANT TO PURCHASE
Construction or Engineering Firm
Entire interest or working control in a large well established construction company or engineering company with a successful record of having completed large-scale projects. We will pay cash for this acquisition and give to present management a profit participating management contract for a period of years. We can furnish excellent bank reference and we are placing this advertisement as principals.
Send three year profit and loss statement and balance sheet, plus business description to
BO-7216, Engineering News-Record
Class Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

DIVING SERVICE
WORLD WIDE
- SALVAGE
- CONSTRUCTION
- INSPECTION
- BURNING & WELDING
- DEMOLITION
- UNDERWATER T.V. & PHOTOGRAPHY

MAXIMUM INSURANCE COVERAGE
SANFORD BROS., INC.
211 Onstead St. Morgan City, La.
Phone 459-5832

WANTED
AIR COMPRESSORS
Ingersoll Rand Portable 600' Rotary Diesel on pneumatic tires.
W-7373, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

FOR RENT
3 - MANITOWOC 3900-Bs
1958-59 MACHINES
Fully independent. Available immediately. Loaded on cars F.O.B. Niagara Falls. Priced very reasonably.
KOCH CRANE & DERRICK CO.
Bronx, N. Y. KI 2-3800

STEEL
FOR TEMPORARY USE
NOW YOU CAN RENT
STRUCTURAL BEAMS AND PLATES
FOR SHORING—RIGGING
OR
TEMPORARY INSTALLATIONS
THE BUNCHER COMPANY
835 Shore Ave., Pittsburgh 12, Penna.
FAirfax 1-4950

IMMEDIATELY AVAILABLE

3—750KW G.M.C. Diesel Generating Sets.
Units powered by G.M.C. Model 12-567A Diesel Engines rated at 1080 B.H.P. at 720 R.P.M. Units are skid mounted and self contained, including radiators. Voltage—2300. Plants complete f.o.b. cars or trucks at Oroville, California.....**$39,600.00 Ea.**

Contact

OROVILLE PROJECT CONTRACTORS

10 West Orange Avenue **South San Francisco, Calif.**

Phone: Plaza 6-0300, Ext. 279

10 MACK DUMPS

MODEL LRVSW

24 yard capacity—Cummins 400 HP engines—torque converters—power steering—1600 x 24 tires, front & rear. In excellent condition. Location: 6 in Minn., 4 in Kansas City. Also 2 Euclids—35 ton 4FFD's in very good condition.

ERNIE RIEKE EQUIPMENT COMPANY
3311 Merriam Lane--Kansas City 3, Kan.
Telephone—days, HE 2-1601;
nights, CO 2-7733

16" x 10' PIERCED PLANK AIRPORT LANDING MATS. Marsten Type-Interlocking. New Surplus—Never used. Original Bundles.

PACO—Seattle, Wash.
P. O. Box 3742A MA. 4-5201

For Sale: DRAGLINES—SHOVELS—CRANES
All makes and models, ½ yd. to 35 yd.
EUCLIDS: Rear, Bottom Dumps and Scrapers
Other equipment available not listed above
William Lubrecht, III Construction Equipment
311 W. Diamond Avenue, Hazleton, Pa.
Gladstone 5-4041 5-0253

PILING

SURPLUS NEW and USED **For Sale, Wanted or Rent**

STEEL SHEET PILING

PROMPT SHIPMENT TO ANY PART OF THE COUNTRY

MP-115—15 to 60 ft.—Kansas City	MZ- 38—14 to 56 ft.—Illinois
MP-116—20 to 60 ft.—Tennessee	MP-116—20 to 50 ft.—Kansas City
MP-115—15 to 60 ft.—Chicago	MP-116—17 to 30 ft.—Idaho
MP-116—17 to 19 ft.—Montana	MP-115—15 to 60 ft.—Tennessee
MP-116—25 to 29 ft.—Oklahoma	MP-116—21 to 23 ft.—Nebraska
MP-112—14 to 16 ft.—Missouri	MP-116—20 to 60 ft.—Chicago
MP-101—16 to 37 ft.—Indiana	MP-116—25 to 30 ft.—Arkansas

PILE DRIVING EQUIPMENT

• DRIVING CAPS • DROP HAMMERS • HOISTS & DERRICKS
• Vulcan and McKiernan-Terry PILE HAMMERS / EXTRACTORS
• BOILERS • MANITOWOC CRANES

CONMACO, INC.

Kansas City, Kansas
804 Kansas Avenue
Phone: DRexel 1-3930

Chicago, Illinois
327 North Bell Avenue
Phone: CHesapeake 3-9354

H & SHEET STEEL PILING

1400 PCS. BP8, BP10, BP12—BP14—55' to 60'
3700 PCS. BETH. SP6A 50', 56' 48' & 40' & 35'
1900 PCS. MP112—12' 15' 20' 25' 31' 35' & 60'
2800 PCS. BETH.—AP3 10. 15', 20', 25', 30' & 60'
2500 PCS. BETH.—DP2—20', 25', 30', 35', 40' & 60'
1200 PCS. ZP38-ZP32—20', 32', 36', 40', 50', 60'
600 PCS. ZP27—20', 26', 31', 40', 45', 60'
500 PCS. 10' & 15' Corrugated Piling

PILING BOUGHT—SOLD—RENTED
STOCKS: N. Y.—BOSTON—BUFFALO
TORONTO—BALTIMORE—JACKSONVILLE
MIAMI—RICHMOND—NEW ORLEANS

DIESEL LOCOMOTIVES & CRANES
12—Gen. Elec. 100, 80, 70, 65, 45, 25, & 23 ton
25 Ton Industrial Loco Crane 60' Boom

7250' & 3600' JOY ELEC AIR COMPRESSORS
Both—2300 V-WN 224C-Radial New 58

R. C. STANHOPE, INC.
60 E. 42nd St. N. Y. 17, N. Y.
Telephone MU 2-3075 or MU 9-1898

For Sale

Gradall in excellent condition.

Diesel engines upper & lower.

FS-7401, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

BUY SELL RENT

USED STEEL

Beams—Pipe & Casing—Plate—BP's—RR Trestles—Bridges

LEOPOLD COHEN IRON CO.
3000 S. Kedzie Chicago 23, Ill. BI 7-6336

"SEARCHLIGHT" Can Help You!

Hundreds of miscellaneous business problems that confront you from time to time, can be solved through the use of the SEARCHLIGHT SECTION of ENGINEERING NEWS-RECORD.

When you want to buy or sell used or surplus new Construction equipment and/or accessories, or have other business wants—advertise them in the SEARCHLIGHT SECTION for quick, profitable results!

MISSISSIPPI VALLEY EQUIPMENT CO.
(WHISLER STEEL PILING CO.—Affiliate)
1908-A Railway Exchange Bldg.
St. Louis 1, Mo. CHestnut 1-4474

PILING IN FLA. & LA.

650 pcs. Z-27, Z-32, Z-28
900 pcs. AP-3, DP-2—15', 20', 25', 30', 50'-60'
900 pcs. AP-3, DP-2—15', 20', 25', 30', 50'60'
500 pcs. H—10"—42 lb. 12"—53 lb. 14"—73 lb.
1200 pcs. MP-112—15', 28', 32', 40' & 60'
Link-Belt Diesel Pile Hammer Model 312

SEABOARD STEEL PILING—TEL. 958-0461
P. O. Box 5071—Sarasota, Fla.

When you need PILING . . . fast

use this section, as many contractors do, as a piling buying directory. It can save you time when you want to know quickly, where to buy good new or used piling.

EUCLID LOADER

98V converted to larger 6-110 GM diesel and extended conveyor. Very good. Offered subject to prior sale or disposition

L. B. SMI H, INC.

Syracuse, New York Phone: HE 7-2611

PIPE

Surplus New & Used

FOR SALE, WANTED OR RENT

STEEL PIPE FOR SALE OR TRADE

Will sell outright or swap for your surplus pipe sizes, the following New Low Pressure Pipe in double random lengths, beveled for welding:

AT NEW ORLEANS NOW:

12,000'—30" OD x .312" x 99# x 450 PSI test
17,000'—30" OD x .375" x 118# x 450 PSI test

AT HOUSTON NOW:

1000'—32" OD x .500" x 168# x 1100 PSI test
4500'—36" OD x .406" x 154# x 400 PSI test

This Pipe Must GO—And It's Priced to go FAST!

Write, Wire or Phone (COLLECT)

Les Cramer, Jr.
PRospect 3-3020

VALLEY STEEL PRODUCTS CO.
124 Sidney Street, St. Louis 4, Mo.

Call: HYACINTH 7-4900

PIPE, VALVES & FITTINGS

PILING • CULVERTS
ASBESTOS-CEMENT PIPE • ALUMINUM PIPE

ALBERT PIPE SUPPLY CO., Inc.
103 VARICK AVE., BROOKLYN 37, N.Y.

PIPE—Reconditioned—For Sale

Structural steel pipe 1½" thru 36"
Spiral Weld pipe 3" thru 16"
W. F. Beams 8" thru 36"
Speedy delivery. Courteous service.

BENSON - STEAD CO., INC.

P.O. Box 98 Portville, N. Y.
PH. XF3—6357

ASSOCIATED PIPE & FITTING CO., INC.

PILING PIPE SHELLS MANDREL FITTINGS | "H" BEARING PILE-POINTS AND SLEEVES | TIMBER SPLICERS AND SHOES | CULVERTS CIRCLE ARCH SECTIONAL

262 RUTHERFORD BLVD., CLIFTON, N.J. • PR 3-8400

RAILS-TIES

TRACK ACCESSORIES

RAILS

MIDWEST STEEL CORP.
502 DRYDEN STREET
CHARLESTON, W. VA.

IMMEDIATELY AVAILABLE

1—Model CA245 Noble Automatic Cement and Aggregate Batching and Mixing Plant which is equipped with one 2 cu. yd. dual-type hopper with separate cement batcher, cement hopper, one-beam back balance type scale for aggregate, one single beam back balance type scale for cement, control stand. Also with the plant are the following items:

1—12" Cement Batcher Feed Screw
1—200 Gallon Water Tank w/Calibrations
1—Admix Dispenser
1—Panel Board
1—Noble Mixer Timer
1—Dry Batch Gathering Hopper
1—4 cu. yd. Gob Hopper w/Air Operated Gate
1—Set of 50 Pound Test Weights
1—Bottom Dump Truck Hopper w/12" Screw Conveyor
1—12" x 7" Bucket Elevator
1—1500 cu. ft. Bulk Cement Silo
1—2000 bbl. Bulk Cement Silo
2—56S (2 cu. yd.) Front Charge Tilting Concrete Mixers
1—Rescreen assembly including rock ladders, etc.

Price including piping, electrical materials, and winterizing equipment, f.o.b. trucks at the Trinity Dam site..... **$64,000.00**

1—30" x 336' Inclined Conveyor complete with catwalk, price f.o.b., trucks at Trinity Dam site..... **$15,000.00**

Trinity Dam is 50 miles West of Redding, California

TRINITY DAM CONTRACTORS

10 West Orange Avenue South San Francisco, Calif.

Phone: PLaza 6-0300—Ext. 279

2—INTERNATIONAL "65" Payhaulers, Quarry Bodies, 18 Ton End Dumps, 250 HP. Cummins. Excellent Condition. The Pair $35,000.00

CHICAGO-PNEUMATIC 900 CFM. Rotary Air Compressor, GM 6-110 Powered, Skid Mounted. Good Condition..... $9,500.00

GARDNER-DENVER 600 CFM. Rotary Air Compressor, GM 6-71 Powered, Portable, 4 Pneumatic Tired, Good Condition. $6,500.00

GARDNER-DENVER 315 CFM. Air Compressor, Powered By Cat. D8800, Portable. $1,375.00

Above Equipment Located My Yard.

AL. FISHEL CO. Jefferson 5-4492
1318 No. Vandeventer St. Louis 13, Mo.

PUMPCRETE

Current Models Sale or Rent
Engineering Service & Parts
R. T. SHERROD
Concrete Equipment Company
12233 W. Fairview Ave. Milwaukee 13, Wis.

FOR SALE

25 yd. Bucyrus-Erie Electric Dragline

WILLIAM LUBRECHT, III
CONSTRUCTION EQUIPMENT
311 W. Diamond Ave., Hazleton, Pa.
Telephone Gladstone 5-4041—5-0253

FOR SALE

1—Erie Strayer Automatic Central Mix Plant with one 3 c.y. Smith Tilting Mixer, aggregate elevator, 800 barrel ground storage silo, 100 kva (Cat.) diesel generator, forced hot oil heating system.

H. I. LEWIS CONSTRUCTION COMPANY, INC.
MIDDLETOWN, PA.—PHONE WHitney 4-4654

HEAVY EXCAVATION EQUIPMENT

DRAGLINES, SHOVELS, CRANES, DRILLS, TRUCKS

1150-B B.E. Drag, Excellent Condition
9-W B.E. Elec. Drag. 200', 8 yd. or 160' 10 yd.
9-W B.E. Diesel Drag, 165' 12 yd.
7-W B.E. Diesel Drag, 140', 7 yd.
7400 Marion Diesel Drag, 175', 13 yd.
7400 Marion Elec. Drag, 175' 12 yd
625 Page Diesel Drag, 160', 9 yd.
631 Page Elec. Drag, 200', 8 yd.
621-S Page Diesel Drag, 125', 7 yd.
183-M Marion Diesel Drag, 130', 8 yd.
200-W B.E. Diesel Drag, 125', 6 yd.
2400 Lima Elec. Drag, 130', 6 yd.
2400 Lima Diesel Drag, 130' 6 yd.
7200 Marion Diesel Drag, 135', 5 yd.
4500 Manitowoc Drag, 120' 5 yds. & 140', 4 yd.
120-B B.E. Elec. Drag, 115', 5 yd.
71-B B.E. Crane with 160' boom
3900, 3500 & 3000 Manitowoc Cranes
111-M Marion Drag, 100', 4 yd.
1055 P&H Diesel Drag, 80', 4 yd.
1601 Lima 4 yd. Shovel/Drag
1201 Lima Drag, 85', 3 yd.
54-B B.E. Drag, 80', 2½ yd.
5560 Marion 26 yd. Elec. Shovel
5323 Marion 18 yd. Elec. Shovel
190-B B.E. 8 yd. Elec. Shovel
151-M Marion 7 yd. Elec. Shovel
1600 P&H 6 yd. Elec. Shovels
170-B B.E. 6 yd. Elec. Shovel
4161 Marion 6 yd. Elec. Shovel
2400 Lima 6 yd. Std. & H.L. Shovels
120-B B.E. & 4121 Marion 4 yd. Elec. Shovels
1055 P&H 3 yd. H.L. Shovel.
111-M Marion Std. & H.L. Shovels
1201 Lima & 54-B B.E. Standard Shovels
#6 Northwest 1½ yd. Standard Shovel
Model T-650 REICHdrill Truck Mtd. Rotary & Down-The-Hole
Ingersoll-Rand Truck & Crawler Mtd. Drill-masters
Euclid Trucks, Rr. & Bottom Dump; Dozers, etc.

FRANK SWABB EQUIPMENT CO., INC.
313 Hazelton National Bank Bldg.
Hazelton, Pa. — GLadstone 5-3658

PROFESSIONAL SERVICES

NEW ENGLAND

Metcalf & Eddy

Engineers

Investigations • Reports
Planning • Siting • Design
Supervision of Construction & Operation
Valuations • Rates • Research
Management
1300 Statler Building, Boston Mass.

MIDDLE ATLANTIC

Baker-Wibberley & Associates, Inc.

Consulting Engineers

Civil, Sanitary, Structural.
Foundations, Soils
49 N. Jonathan St., Hagerstown, Md. Baltimore, Md. Waynesboro, Pa.

Joseph S. Ward and Associates

Consulting Soil and Foundation Engineers

Site Investigation, Boring Supervision, Laboratory Soil Testing, Foundation and Pavement Analysis and Design, Construction Supervision, Engineering Reports and Consultation
91 Roseland Avenue Caldwell, N. J.
Jefferson Building Phila., Penna

Albert C. Jones Associates

Consulting Engineers

Private and Municipal Engineering
Sewerage-Sewage Treatment
Water Supply and Distribution
Investigations and Appraisals
Photogrammetric Engineering
Aerial Maps
223 High St. Mount Holly, New Jersey

Howard, Needles, Tammen & Bergendoff

Consulting Engineers

Bridges • Structures • Foundations
Admin. Ser. • Traffic & Parking •
Express Highways • Airports
Kansas City - Cleveland - New York

E. Lionel Pavlo

Consulting Engineer

Design, Supervision, Reports
Bridges, Highways, Expressways
Marine Structures, Public Works
Industrial Construction, Airports
642 Fifth Ave. New York 19, N. Y.

When you need a SPECIALIST in a hurry . . .

Engineering News-Record's Professional Service Section offers the quickest, most direct method of contacting consultants who may be available NOW.

Severud-Elstad-Krueger-Associates

Consulting Engineers

Structural Design - Supervision
Reports - Buildings - Airports
Special Structures
415 Lexington Ave., New York 17, N. Y.

Steinman, Boynton, Gronquist & London

Consulting Engineers

HIGHWAYS - BRIDGES
STRUCTURES
117 Liberty St., New York 6, N. Y.

Lockwood, Kessler & Bartlett, Inc.

Consulting Engineers

Civil Engineering Investigations and Reports, Design and Construction Supervision of Bridges, Highways, Pipelines, Expressways, Industrial Buildings, Sewerage, Airports and Municipal Improvements, General Site Engineering, Seismic Subsurface Investigation, Cadastral, Geodetic & Topographic Surveys, Photogrammetric Engineering & Mapping.

One Aerial Way, Syosset, New York
Bogota, Colombia San Juan, P. R.

Modjeski and Masters

Consulting Engineers

Bridges and other Structures
Foundations
Highway and Expressways
900 North Sixth St. Harrisburg, Pa.
Philadelphia - Miami - New Orleans

Michael Baker, Jr., Inc.

Consulting Engineers, Planners & Surveyors. Airport, Highway & Bridge Design; Water & Sewerage; Municipal Engineering; Photo Mapping; City Planning urban Ren. & Dedev. Surveys: Soils Lab. Home Office—Rochester, Pa. Br. Off. Jackson, Miss. Charleston, W. Va., Harrisburg, Pa.

Sprague & Henwood, Inc.

Drilling Services

Foundation Investigations, Soil Testing & Test Borings, Grout Hole Drilling & Pressure Grouting, Diamond Core Drilling
Main Office
221 W. Olive Street, Scranton, Pa.
Branches:
1009 Western Savings Fund Bldg., Philadelphia, Pa.
11 W. 42nd St., New York, New York
300 Mt. Lebanon Blvd., Suite 100 Pittsburgh 34, Pa.
Box 1446—Salt Lake City
Nashville, Tennessee
Tucson, Arizona
Buchans, Newfoundland

Buchart-Horn

(Buchart Engineering)

Consulting Engineers

Highways — Bridges — Sewer Systems
Surveys — Water Works — Dams —
Municipal - City Planning - Structures
55 S. Richland Ave., York, Pa.
Lancaster, Pa. Washington, D. C.

SOUTH

Rader and Associates

Engineers - Architects

Sewage Disposal, Water Works, Ports, Airports, Bridges, Highways, Office and Commercial Buildings, Industrial Plants, Reports, Investigations, Consultations, Aerial Photography, Photogrammetry.
First Nat'l Bank Bldg., Miami 32, Fla.

MIDDLE WEST

Sargent & Lundy

ENGINEERS

Consultants to the Power Industry

Studies • Design • Supervision
140 South Dearborn Street,
Chicago 3, Ill.

Consoer, Townsend & Associates

Consulting Engineers

Sewage treatment, sewers, storm drainage, flood control—Water supply and treatment—Highway and bridges—Airports—Urban renewal—Electric and gas transmission lines—Rate studies, surveys and valuations—Industrial and institutional buildings.

360 East Grand Ave. Chicago 11, Ill.

Toledo Testing Laboratory

Engineers—Chemists

Concrete—Soils—Asphalt
Inspection Research
Tests Development
Foundation Investigation
Borings — Diamond Drilling — Load Tests
Soils Mechanics Laboratory
1810 North 12th St. Toledo 2, Ohio

AERIAL SURVEYS

American Air Surveys, Inc.

AERIAL TOPOGRAPHIC MAPS & AERIAL PHOTOS FOR
• Highways • Airports • Power & Pipe Lines • Railroads • Mining • All types construction • Stockpile Inventories
907 Penn Ave. Pittsburgh 22, Pa.
Branches-Manhasset, N.Y.-Atlanta, Ga.

THIS SECTION

Is available to consulting engineers to contact prospective clients every week or every other week.

CONSULT THESE SPECIALISTS . . .

when you need professional assistance in solving difficult problems. Their specialized knowledge and broad experience can prove invaluable in saving both time and money for you.

Engineering News-Record invites other consultants to list the special services they offer on these pages. Rates for the Professional Services section are:

	PER WEEK		
	13 times	26 times	52 times
¾"—$14.35	$13.35	$12.45	
1½"—$23.85	$22.30	$21.00	

Minimum order 13 insertions.

SEARCHLIGHT Equipment Locating Service

This service is aimed at helping you, the reader of "SEARCHLIGHT", to locate Surplus new and used Engineering and Construction equipment not currently advertised. (This service is for USER-BUYERS only). No charge or obligation.

How to use: Check the dealer ads on pages 79-81 to see if what you want is not currently advertised. If not, send us the specifications of the equipment wanted on the coupon below, or on your own company letterhead to:

Searchlight Equipment Locating Service
Classified Advertising
c/o ENGINEERING NEWS-RECORD
P.O. Box 12, New York 36, New York

Your requirements will be brought promptly to the attention of the equipment dealers advertising in this section. You will receive replies directly from them.

Searchlight Equipment Locating Service
Classified Advertising
c/o ENGINEERING NEWS-RECORD
P.O. Box 12, New York 36, N. Y.

Please help us locate the following equipment:.....

.....

Name ..... Title .....

Company ..... Street .....

City ..... Zone.... State.....9/7/61

CLASSIFIED ADVERTISING INDEX

Albert Pipe Supply Co. 81
American-Marietta Co. 78
Associated Pipe & Fitting Co. Inc. 81
Benson-Stead Co. 81
Buncher Co. 79
Concrete Equipment Co. 81
Conmaco, Inc. 80
Cohen Iron Co., Leopold 80
Fishel Co., Al 81
Harza Engineering Co. 78
Instrument Sales Co. 79
Koch, Crane & Derrick Co. 79
Lewis Construction Co., Inc., H. I. 81
Lubrecht III, William 80, 81
MacCabee, Campbell & Associates 78
Midwest Steel Corp. 81
Mississippi Valley Equipment Co. 80
Moto-Crane Service 80
National Schools of Construction 79
Oroville Project Contractors 80
PACO 80
Rieke Equipment Company, Ernie 80
Sanford Bros. Inc. 79
Seaboard Steel Piling 80
Stanford Research Institute 78
Stanhope Inc., R. C. 80
Swabb Equipment Co., Inc., Frank 81
Smith Inc., L. B. 81
Telephone Engineering Co. 79
Tipton and Kalmbach, Inc., Engineers 78
Trinity Dam Contractors 81
Valley Steel Products Co. 81
Wilson Engineering Corp. 79

ADVERTISERS IN THIS ISSUE

Acker Drill Co., Inc. 40
American Bridge Div., United States Steel Corp. 36
American-Marietta Co. 49
American Steel & Wire Div., United States Steel Corp. 12-13

Walter Balfour & Co., Inc. 65
Bethlehem Steel Co. 1; 41-44; 63

Calweld, Inc. 38
Clark Equipment Co., Const. Mchy. Div. 35
The Colorado Fuel & Iron Corp., Wickwire Spencer Steel Div. 50
Concrete Reinforcing Steel Institute 58
Cubic Corporation 73

Davey Compressor Co. 47

Elgood Equipment Corp. 48

The Flintkote Company 45
L. B. Foster Co. 2

Gahagan Dredging Corporation 39
Georgia-Pacific Corp. 11

B. M. Heede, Inc. 37
Hendrix Mfg. Co., Inc. 29
Hetherington & Berner, Inc. 46
Huber-Warco Company 57

International Harvester Co., Construction Equipment Div. 4-5; 70

The Kinnear Mfg. Co. 58

Lock Joint Pipe Co. 14
E. J. Longyear Company 48

Mayo Tunnel & Mine Equipment 62
W. R. Meadows, Inc. 60
Moretrench Corporation 10
Mueller Co. 59

New England Carbide Tool Co. 34

Pacific Crane & Rigging Co. 40
Penn-Dixie Cement Corp. ..... 2nd Cov.
Phoenix Bridge Company 48
Pittsburgh Plate Glass Co. 18
Posey Iron Works, Inc. 47
The Prescon Corporation 66

Republic Steel Corporation 52-53
Rockwell-Standard Corp., Grating Div. 56

Shell Oil Company 8
Sika Chemical Corporation ..... 3rd Cov.
Spencer, White & Prentis, Inc. 48
Symons Clamp & Mfg. Co. 10

Thiokol Chemical Corp. 16
The Timken Roller Bearing Co. ..... 4th Cov.
The Torrington Company 54

United States Concrete Pipe Co. 3

Warren-Knight Co. 39
Wheeling Corrugating Co. 6-7

Yuba Consolidated Industries, Inc. 9

Professional Services 82

CLASSIFIED ADVERTISING

F. J. Eberle, Business Mgr.

Employment Opportunities 77-79
Notices
Proposals 74-76
Equipment
(Used or Surplus)
(For Rent, Sales Wanted) ... 79, 80

ENGINEERING NEWS-RECORD

330 West 42 St., New York 36—LOngacre 4-3000

ABP Member ABC

Number of copies of this issue printed 87,592

D. S. ROBERTSON, Advertising Sales Manager
HUGH J. CARLSON, Business Manager
LANG CARPENTIER, Production Manager
JACK NEVINS, Assistant Production Manager

ADVERTISING REPRESENTATIVES

Atlanta, 9—1375 Peachtree St., N.E.,
Robert H. Powell, Jr.

Boston, 16—McGraw-Hill Bldg., Copley Square
C. D. Neulen

Chicago 11—645 North Michigan Ave.
L. H. Hunt, W. G. Payne

Cleveland, 13—1164 Illuminating Bldg.,
55 Public Square
H. A. Bergstrom, F. P. DiToro

Dallas, 1—Vaughn Bldg., 1712 Commerce St.,
John Grant

Denver, 2—Tower Building, 1700 Broadway
J. W. Patten

Detroit, 26—856 Penobscot Bldg.
Earl S. Moore, Jr.

Houston, 25—Prudential Bldg.,
Holcombe Blvd.—Joseph C. Page

Los Angeles, 17—1125 W. Sixth St.,
Knox Bourne, S. S. Tiebout

New York, 36—500 5th Ave.
C. D. Neulen, H. T. Olsen
Robert L. Barker

Philadelphia, 3—Six Penn Center Plaza
George K. Smith
Patrick Keleher

Pittsburgh, 22—4 Gateway Center
Malcolm Russell

Portland 4, Oregon—Room 445, Pacific Bldg.
Scott Hubbard

St. Louis, 8—Continental Bldg., 3615 Olive St.
E. B. Mingle, Jr.

San Francisco 11—255 California St.
John J. Hernan

OTHER SALES OFFICES:

United Kingdom, Edwin E. Murphy, 34 Dover Street, London W.1—Germany, Austria, Stan Kimes, 85 Westendstrasse, Frankfort/Main, Germany—Switzerland, Italy, France and Belgium, Michael R. Zeynel, 2 Place du Port, Geneva, Switzerland

CONSTRUCTION BUSINESS NEWS... streamlined... highlighted...

for

TOP MANAGEMENT

- **capsule, synopsis reporting**
- **fast—2-level reading**
- **supporting detail — for convenient routing to department heads and specialists**

New business coming up . . . price and cost movements . . . labor relations . . . construction business outlook . . . special situations . . . where the construction dollars are going . . . where they are coming from . . . foreign jobs . . . Government actions affecting construction . . . spot industry news . . . major project reports

See for yourself how easy it is to keep ahead of the news with

CONSTRUCTION DAILY . . . NEWSLETTER

A McGraw-Hill Service

A 3-month test offer

You can test the special benefits to you for three months at the quarterly rate of $50.

A bonus for starting now:

You get a two weeks (ten issues) service at no additional cost by entering your 3-months subscription this month.

Be first to know what is happening, start your CONSTRUCTION DAILY NEWSLETTER Service NOW:

CONSTRUCTION DAILY
28th Floor—330 West 42nd St.,
New York 36, N. Y.

O.K.—Enter a three-month trial subscription to CONSTRUCTION DAILY NEWSLETTER at a cost of only $50.00 (this offer includes free copies for an additional 10 issues if order is mailed within two weeks). This offer covers daily copies of the NEWSLETTER—sent by 1st class mail. Or, if you prefer a year at $155, check here ☐

☐ Payment enclosed

Name ..... Position.....
Address .....
Postal
City..... Zone.... State.....
Name of Company.....
Type of Business.....

ENR-T4

Editorials

New Address

AN ANNOUNCEMENT that may be remembered as a historical "first" arrived in the mail this week. Wholly routine in appearance and content, it offered information about a series of lectures to be presented in New York this fall. And with no special emphasis at all it noted the location of the lectures as "New United Engineering Center, 345 East 47th Street."

In this casual and entirely unpremeditated manner a new address was born, one that will rapidly become familiar to engineers throughout the country. Many will have that good feeling of vested interest because their money helped make it possible. All engineers can take pride in the fact that the address applies to a headquarters and service center for their profession that is worthy of its needs and expressive of its ideas.

Properly, the United Engineering Center building exhibits the fruits of forward-looking technology in its architecture, structural framing and mechanical and electrical facilities. One street facade presents the smooth, uninterrupted surface that cantilevered floors permit; the other lends emphasis to the verticality of the tower and its basic load carrying elements by exposing the columns and sheathing them in stainless steel.

Within, long-span girders are of minimum depth by virtue of fixed-end design; girder webs are pierced for utility lines so that space is not wasted by hung ceilings; trusses span the large public rooms to leave them column-free; and the framing was welded wherever this was deemed to offer a structural advantage.

In its air-conditioning, its lighting and its elevators, the building utilizes the latest achievements of these technical arts. And to emphasize confidence in the future by being ready for growth, the building incorporates all necessary provisions for expansion outward and upward.

Beyond this physical evidence of alertness to present needs and awareness of an expanding future, as represented by the building, a certain symbolic significance can be read into the above-mentioned announcement of lectures so matter-of-factly scheduled to be held at 345 East 47th Street. This is because their purpose is to provide a review course for those who want to prepare to pass the examination for a professional engineer license, and because the sponsor of the review course is the Associate Member Forum of the Metropolitan Section of the American Society of Civil Engineers.

On both scores there is a definite accent on youth, and it is this accent that all of the technical societies headquartered in the new United Engineering Center must foster if technology is to advance in keeping with the world's needs.

The passing of the old address, 33 West 39th St., recalls the magnificent contributions engineers made to human progress during the half century that it was a focal point. The change to the new address of 345 East 47th St., which the American Society of Civil Engineers staff is completing this week, should foreshadow equally magnificent contributions by engineers in the years to come.

Giant Strides

IN LITTLE MORE THAN five years, the men who plan, design and operate highways in the U.S. have shaken off a deep-rooted lethargy, taken some giant strides and caught up with modern engineering and management techniques. Proof of this exciting situation and promising prospect was prominently demonstrated at the recent Boston conference on improved highway engineering productivity (ENR Aug. 31, p. 22).

No longer do highway engineers think of themselves as a breed apart, too often with their interest centered on doing things the same way they were done a decade ago. Now they are accepting and using the work of mathematicians, physicists, electronic engineers, chemists and many others.

The resulting blend of skills is bound to make highways of the future better, safer and more economical than ever before.

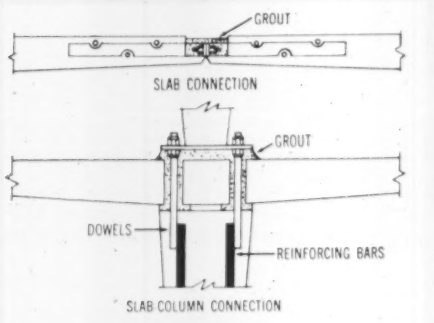
And more giant steps are in the offing. Some became apparent at Boston.

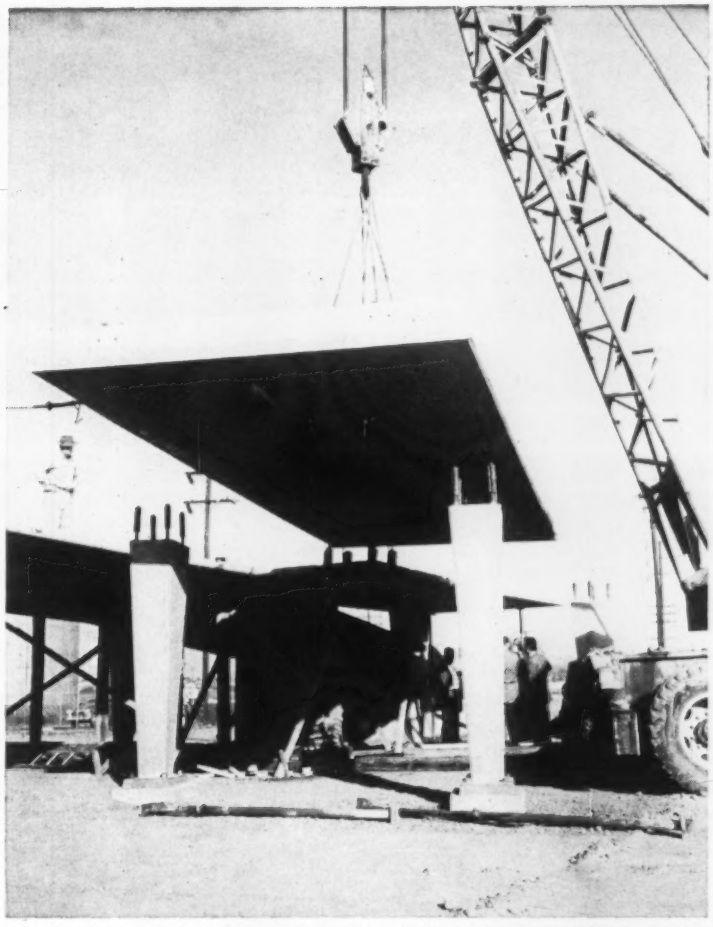
One is the imminent breakthrough in communications, particularly in rapid transmission of data from the central office to the field, and vice versa. It is a breakthrough that must come, since communications are probably the weakest link in the chain of operations of a typical state highway department. And rapid data processing at a central location is of little value without equally rapid communications.

Another forward step is seen in plans for full use of existing and proposed urban expressways to handle peak traffic volumes. Full use implies a degree of evaluation and control of traffic previously unknown in most cities. It's being done now on the John Lodge Expressway in Detroit, where TV cameras are used to monitor and control traffic. In the next five years, similar schemes will be commonplace.

On the horizon, too, is the "automatic" rural highway with individual vehicles guided and controlled to fit into a rapidly moving traffic stream. Some technological problems (particularly the development of reliable automatic steering) remain to be solved before such a road can become a reality. But there is confidence that these problems will be overcome.

These are but a few of the indicators of the rapidly changing technology of highway engineering. To their credit, most highway engineers seem ready, willing and able to move ahead with the times.





PHOTOS THROUGH COURTESY OF TISHMAN RESEARCH CORPORATION, NEW YORK, N. Y., DESIGNERS AND DEVELOPERS OF TIERPARK GARAGES

5000 psi in sixteen hours with SIKA SET

Grout and dry pack mortar with rapid strength development and minimal shrinkage is essential for the fast erection of the new Tierpark Parking Structures developed by Tishman Research Corporation. Composed of only three elements — slabs, columns and ramps — a Tierpark structure is erected within a matter of days.

Mix proportions for high strength grout and dry pack mortar were developed at the Sika Concrete Laboratory. Sika Set liquid, diluted 1:3, added to the dry pack produced compressive strengths exceeding 5000 psi at sixteen hours. Sika Set, diluted 1:4, added to the poured grout produced compressive strengths exceeding 3000 psi at sixteen hours. Proportions of 1 part Type III cement to 1-1/2 parts sand were used.

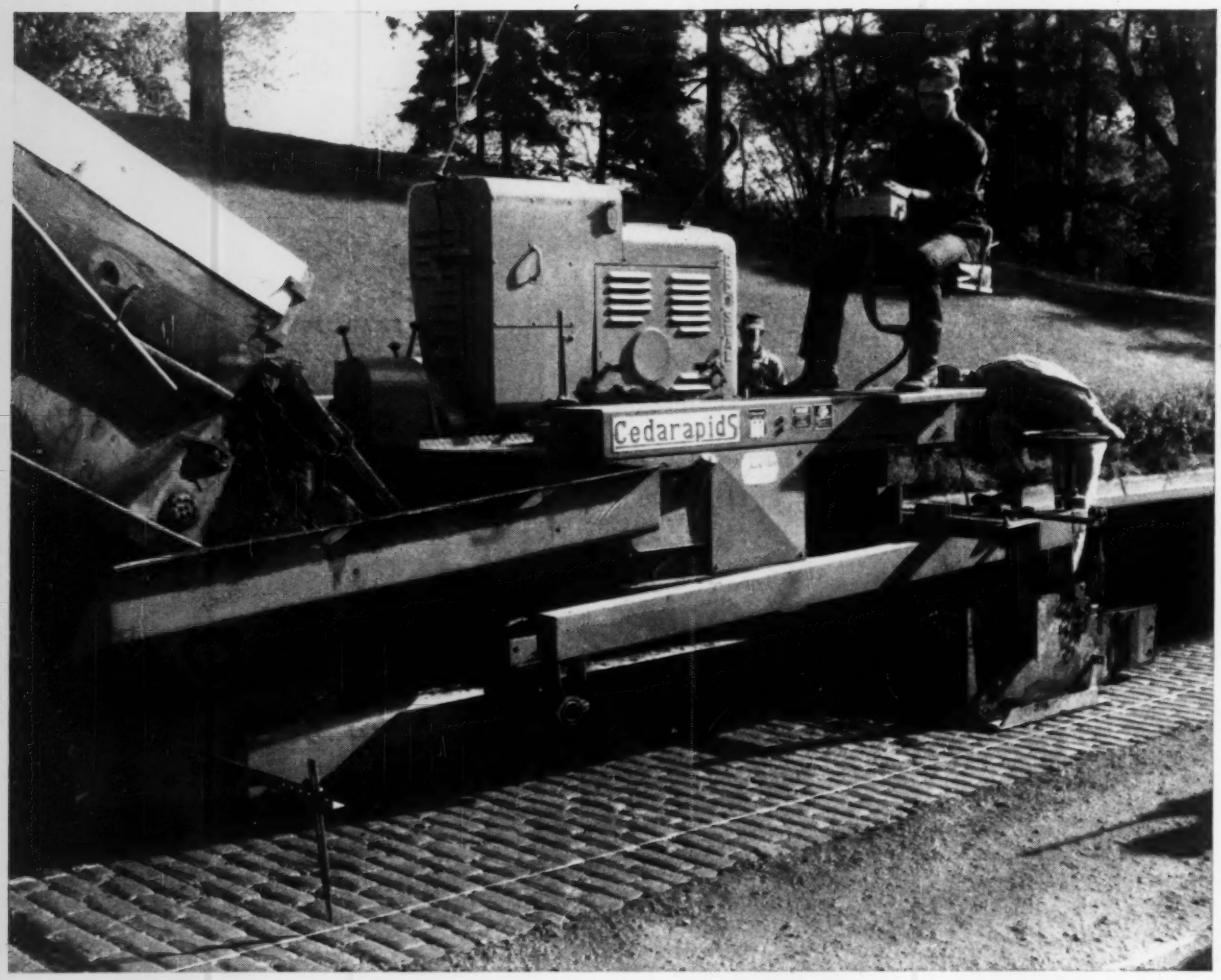
Structural concrete was initially retarded by the use of Plastiment Retarding Densifier to facilitate finishing — with rapid strength gain as an added bonus to the manufacturer of the precast, prestressed elements.

For full details on Sika Set Shrinkage Reducing Accelerator and Plastiment Retarding Densifier ask for your copies of SET-661 and PCD-59. Offices and dealers in principal cities, sixteen affiliate manufacturing companies around the world. In Canada, Sika Chemical of Canada, Ltd.; in Latin America, Sika Panama, S. A.

Sika

SIKA CHEMICAL CORPORATION

Passaic, N. J.

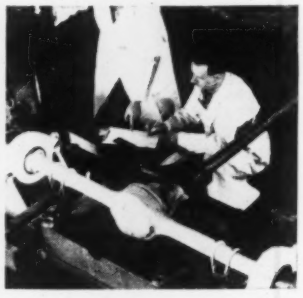


How Cedarapids paver turns rough road into easy street

This electrically controlled Cedarapids paver can turn any rough road into a smooth bituminous surface at speeds up to 102 ft. per minute. The steering of the paver imposes heavy thrust loads on the crawler track bearings. To take this punishment and keep it paving without delay, its builder—Iowa Manufacturing Company—specified Timken® tapered roller bearings for the track drive sprockets and track takeup idlers.

Timken bearings solve load problems because their tapered construction lets them take any combination of radial and thrust loads. They keep sprockets on track assemblies properly aligned. Because of their separable components, Timken bearings make assembly easier and more economical. And they make sealing more effective in keeping lubricant in, dirt out. Performance stays up, maintenance down. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

Makers of Tapered Roller Bearings, Fine Alloy Steel and Removable Rock Bits. Canadian Division: Canadian Timken, St. Thomas, Ontario.



TO HELP SOLVE CUSTOMER BEARING PROBLEMS we use advanced testing equipment in our modern laboratories. It not only serves customers, but furthers our program of improving Timken bearings.

Industry rolls on

TIMKEN®

tapered roller bearings